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REPORT ON THE McCABE COLLECTION OF  
BRITISH COLUMBIAN BIRDS

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## INTRODUCTION

During the years 1929-1941 the late Thomas T. McCabe and his wife Elinor B. accumulated a most outstanding collection of birds from British Columbia. The great majority of these specimens were taken in the central and southwestern portions of the province (Plate 1.). The collection in its present form amounts to approximately 4700 study skins. Mr. McCabe very generously donated almost the entire collection to the Museum of Comparative Zoology in 1936. It was his intention to complete a definitive work on the birds of British Columbia. His death in 1948 prevented the fulfillment of this aim. Through the courtesy of the late Mr. James L. Peters, I was offered the opportunity of examining and reporting on this collection while I was in residence in Cambridge.

A great portion of the collection quite naturally comes from the Indianpoint Lake — Cottonwood — Barkerville region, where the McCabes had their residence. Mr. and Mrs. McCabe spent all of their summers and an occasional winter from 1929 to 1941 at their home on Indianpoint Lake. They were aware of the critical geographic position of this site and their efforts were bent toward collecting adequate series from the area. At the same time they also made frequent and sometimes extended trips to the coastal islands to gain a more complete picture of the bird fauna. I quote from a letter to Mr. Peters which Mr. McCabe wrote in connection with the transfer of his collections to Cambridge.

“ . . . Great Basin conditions and a great Basin fauna strike deeply into the interior of southern British Columbia to end rather abruptly on a line passing west from the middle North Thompson valley precisely through the town of Clinton and curving southward around Lillooet as it strikes the inner ranges of the Coast Range. Practically at Clinton the Western Kingbird and Bluebird, the Lazuli Bunting, the Cassin Purple Finch, House and Rock Wrens and Poor-wills, drop out of the picture for good, with many other things. Our interest has lain in the population immediately north of this line, to which we have hewed pretty closely. That to the south is very completely represented [in other collections] . . . our more northern zone is northern in its affinities as well as spectacularly eastern, — i.e., the great southeastern-northwestern sweep makes itself dominantly felt in British Columbia, even so far south,

like an eddy of the transcontinental forest types. Many of these eastern or mid-continental things go through the Coast Range to salt water at the heads of the long inlets or fjords. The true coastal races form a mere pencil line on the *outside* coast and islands. No other collection contains much of anything from the coast between Vancouver and the islands of American southeastern Alaska, a stretch of some five hundred miles with more individuality than is realized.

"On the coast the great break to the southern fauna takes place much further south, where the offset and break occurs between the great Canadian Coast Range and the Cascades, a total transformation of topography and basic geology. Therefore we have worked a good deal farther south on the coast and have a good deal of stuff from the Fraser River Delta. So far we have omitted Vancouver Island for the most part, and we have never been to the Queen Charlottes. The latter, a young continent by themselves, we are simply leaving until we get around to them. The former we at first left simply because we thought Swarth had done it pretty well and because it was relatively much-worked by other collectors. Since making some superficial reconnaissance of the northern tip, however, we have come to realize the absurdity of treating Vancouver Island as a faunal unit as Swarth and other writers did after collecting in the extreme south. Although one or two forms may break sharply across the Queen Charlotte Sound, as the Hairy Woodpeckers do, it would be no great exaggeration to say that northern Vancouver Island was Alaska and southern Vancouver Island northwestern Washington. . . . We have a fair series of midwinter things from the country east of the Fraser River, but we have operated from April 1, to November 1, west of the Fraser and on the coast."

What a shame it is that Mr. McCabe, with his intimate knowledge of the region, could not have lived to complete his study!

In working with this collection I have been handicapped by the fact that I have never seen the country from which the material came. This lack of knowledge caused me to hesitate before even approaching the problem. There is little doubt in my mind that some of the decisions reached might be different if I had been able to use field-gathered information.

Mr. McCabe kept detailed field notebooks and these have been at my disposal through the courtesy of Mrs. McCabe. I have, on most occasions, been hesitant to rely too heavily on a second-hand interpretation of the information contained in these notes. For the individual familiar with the habitats in British Columbia, and intent on conducting a thorough faunal survey, the notes will prove to be of great value. They are deposited in the library of the Museum of

Comparative Zoology for future reference. Included are detailed itineraries of trips, notes on field behavior, numbers of birds seen, weather, habitats, song, dates of arrival and departure and much miscellaneous information. Mr. McCabe was quite interested in migrational problems and the majority of the skins have complete information as to the amount of fat present and the condition of the gonads. He was painstaking in the examination of each specimen as to its sex. In some cases tissue was removed at the time of skinning and later examined microscopically to verify the correctness of this information. Many specimens were weighed at the time of skinning. I note in another of his letters to Mr. Peters, the great distress with which he reported the loss of his "field balance".

Mr. McCabe was, for the most part, careful to use easily identifiable place names in designation of collecting localities. Practically all of the mainland localities can be located on any of the several "road maps" of the area which are available. I have taken certain minor liberties with locality data in listing the specimens, i.e. I have deleted, on most occasions, such information as "1/2 mile north" of various stations. In only one case have I substituted a different place name for the designation given by Mr. McCabe. Sometime during the period covered by his collecting activities, the name of "Bear Lake" became Bowron Lake. This was apparently done to avoid confusion caused by the multiplicity of "Bear Lakes" in British Columbia. I have used the present official designation — Bowron Lake — throughout this report.

The purpose of my report is to present a tabulation of the McCabe collection — with critical comments on distribution of the recognizable forms where the material available seemed adequate. I feel that it would be presumptive for me to try to add to the excellent general picture of bird distribution in British Columbia presented in the several works now available, by authors who have lived and worked in the habitats of the province. The major contributions which have come to my attention are as follows: Brooks and Swarth (1925), Cowan (1939), Munro (1941), the Stanwell-Fletchers (1943) Munro (1947), Johnstone (1949), Munro (1950), Munro and Cowan (1947), and Rand (1948a). Many other shorter contributions and works not concerned specifically with the problems of British Columbia are of interest, and mention of them is made in their appropriate connection elsewhere.

In the allocation of specimens I have, in so far as possible, tried to recognize the fact that the specimens at hand are simply samples of populations. Where the McCabe series is adequate to present a concept of variation I have probably been more successful in achieving this aim than in those cases where only one or a few specimens were collected. In most instances the collections of the Museum of Comparative Zoology are more than adequate for comparative purposes. I am however indebted to Museum of Zoology at Berkeley (through Alden H. Miller), the Chicago Natural History Museum (through Emmet R. Blake), the U. S. National Museum, and Fish and Wildlife Service (through J. W. Aldrich) for the loan of specimens.

In the annotated list which follows, I have listed every specimen, now in the Museum of Comparative Zoology collections, which was collected by Mr. and Mrs. McCabe in British Columbia<sup>1</sup>. I have chosen to give the earliest and latest date of collection for each of the localities. It must be remembered that this can not be interpreted as earliest and latest dates of record for the form concerned.

#### ACKNOWLEDGMENTS

I am deeply indebted to the late Mr. Peters for his many kindnesses extended during the course of my study. He was always ready to lend a hand to help me over some difficult decision. I feel fortunate that I was privileged to be associated with him. Critical examination of the material was completed prior to Mr. Peters' death and we had opportunity to discuss the form of this report. It must be understood, however, that the critical decisions are my own. Mr. Peters did not necessarily agree with me on all occasions.

The General Education Board furnished financial assistance which allowed me to spend a year away from teaching duties. The staff of the Museum of Comparative Zoology was most courteous and helpful whenever they were called upon. Mr. James C. Greenway, Jr. was always ready to stop what he was doing to discuss various problems and I am deeply grateful for his many favors. Mrs. McCabe very kindly consented to come to Cambridge to give me a first-hand account of the conditions under which the collection was assembled. She also furnished the photographs which appear as Plate 2.

To all of these persons and to the many others who made my stay in Cambridge pleasant and profitable I express my deep appreciation.

<sup>1</sup> Omitted from this report are a considerable number of pelagic birds collected off the coast of California, near Santa Cruz.

## SOME REMARKS ON SPECIATION

The populations of flickers as they occur in British Columbia are at best a difficult problem to handle taxonomically. I am not too happy with the solution here presented, but under the circumstances I feel that a better picture of relationships is afforded by this treatment.

The action of uniting *Colaptes auratus* and *Colaptes cafer* requires some explanation and defense. My decision in this case is based in the main on study of the material in the McCabe Collection although I have examined a large number of skins in the collections of the Museum of Comparative Zoology in the course of the investigation.

Current practice has it that *Colaptes cafer cafer* (Gmelin) occurs along the coast, west of the Cascade Mountains; *C. c. collaris* Vigors is recorded east of the Cascades to the western slopes of the Rocky Mountains where it "hybridizes" with *C. auratus borealis* Ridgway. I can see no defense for maintaining these three subspecies as races of two species. That the yellow- and red-shafted elements of the populations involved, meet and intergrade along their mutual boundaries is well recorded. I believe the fact that the characters which serve to differentiate the two elements are easy to see (not requiring ruler and dividers), making it easy to recognize offspring of mixed ancestry, has been the principal factor allowing the retention of the two groups at the species level by earlier workers. I do not think that if the characters involved were wing length, tail length, tarsus length, and culmen rather than color of moustache, nape, throat and flight feathers, there would be any question as to their conspecificity. Even so, the diagnostic characters show continuous variation with all degrees of intensity of manifestation. Evidence has been presented by Bateson (1913: 147-159) to show that each of these characters is controlled by several genes with lack of dominance and/or a multiplicity of semi-dominant alleles for each of these genes. This concept is borne out by the blending of the various phenotypes. Neither do the genes controlling these characters appear to be linked in inheritance.

Ripley (1945: 340) suggests that the flickers are examples of the evolutionary pattern which he considers as "emergent species". His recommendation appears to be based on Huxley's (1942: 250) interpretation of the geologic history of the region showing divergence of the forms followed by a secondary meeting. The concept has considerable merit and I think the available evidence supports such a conclusion. On the other hand, our present nomenclatorial system unfortunately

does not allow a distinction between this condition and one in which interbreeding and intergradation have always existed. I have commented on this weakness of our system in connection with subspeciation in *Pipilo erythrophthalmus* (Linné) (Dickinson 1952).

Conditions exhibited by the birds from central British Columbia reflect geographic intermediacy attended by morphological blending of characters. This I feel is "intergradation" by definition and I see no course open but to unite the forms as a single species.

As to the occurrence of *C. a. cafer* in coastal British Columbia, I have been unable to arrive at any opinion on the basis of the material contained in the McCabe collection. Mr. McCabe collected only five specimens from coastal localities. I can not detect any differences in color or measurements in these birds from those taken in the interior.

In the annotated list of specimens, I have, as is usually the practice in such cases, formed an arbitrary and subjective concept of a dividing line between the forms. Atypical specimens assigned to one or the other can be discovered by examination of the detailed summary of characters supplied in Table 3 (pp. 160-161).

In the case of the British Columbian sapsuckers, I find a totally different picture. There seems to be little if any indication of intergradation between the red-naped and red-breasted forms. In my opinion these forms should be regarded as specifically distinct. It is obvious that *S. varius* is replaced along the coast by *S. ruber* but the ranges of the two species overlap to a considerable degree. This zone of overlap is not occupied by a population of morphological intermediacy. In the combined series of 90 specimens of the two forms I find only a single specimen of doubtful parentage. This specimen, apparently a bird of the year, was collected at Bowron Lake on July 23, 1930. Munro and Cowan (1947: 141) comment that they have seen "two possible hybrids" taken at Springhouse and Lake la Hache. The collections of the Museum of Comparative Zoology reveal three additional variants — one each from Okanagan, B. C., Fort Klamath, Oregon and San Diego County, California.

The juncos of British Columbia have been treated critically by Miller (1941a). Mayr (1942) in his review of Miller's exhaustive study commented as follows: "Miller's species concept is that of the taxonomist of the old school, since his species is apparently entirely based on the degree of morphological difference. He admits freely that all the forms, so far as tested, are not only interfertile, but not even



separated by psychological barriers. In fact, he presents a good case for considering *cismontanus* a stabilized hybrid race between the 'species' *hymemalis* and *oregonus* [*sic*, = *oreganus*], although there is slight evidence for some sexual isolation between *cismontanus* and *oregonus* [*sic*] *montanus*. Would it not be much simpler and biologically more nearly correct to include all the juncos in a single superspecies, with three species: (1) *vulcani*, (2) the yellow-eyed group, and (3) the brown-eyed group?"

I am not in a position to make any suggestions concerning any elements of the problem other than that included in "(3)" above. It may well be argued that I have not seen sufficient material or made a thorough enough investigation of the problem to venture an opinion on even this part. In comparison to Miller I have seen only a relatively small number of specimens. I am basing my action to a large extent on Miller's data. As Mayr has already pointed out, Miller presents a perfectly clear case for merging of *hymemalis* and *oreganus*.

Miller (1949) has commented, in a discussion of the problems of hybridization and intergradation, ". . . in instances of hybrid junction we must look with care for the true biological criteria for species, namely for some degree of actual reproductive isolation. Such isolation may be present in the form of lowered viability or fertility, even when hybridization is freely undertaken." In this discussion Miller has differentiated the terms "hybridization" and "intergradation" in a rather special way. In his definitions of these two terms he states: "Intergradation . . . indicates two things: (1) blending inheritance of the characters involved, and (2) frequent, if not free, interbreeding of individuals. Hybridization indicates: (1) non-blending or alternate type of character manifestation, usually with few genetic determiners involved in any one character, and (2) free, or partial, or at least a little, interbreeding." The difficulty of special definitions for such words as "hybridize" is immediately borne out in the body of Miller's discussion where he uses "hybridize" to label any cross of two unlike parents. Interbreeding might be a more descriptive term in this case. Hybridization must be thought of as a process — intergradation its result. Under Miller's definition, the problem presented by two forms which differ in two characters — one determined by a single gene and its allele and another dependant upon the varied expression of many genes — is not resolvable.

It is my feeling that the type of inheritance involved is not a valid

criterion to be used in the study of such problems. More and more the study of speciation is being conducted in terms of populations, not individuals. Under such conditions the segments of adjacent populations which occupy areas of geographic intermediacy can be viewed as a whole. Under ideal conditions these segments can be characterized as "intermediate", regardless of the kinds of characters and/or types of inheritance involved in the transmission of these characters. The zone of junction will then, if subspecies are being dealt with, be occupied by a *population* which shows morphological and spatial blending, or spatial blending alone of the characters serving to distinguish the subspecies concerned. I believe that this intermediate population will have to be viewed as proof of close relationship of the parent stocks—best indicated nomenclatorially by designation of these stocks as subspecies.

Miller (1949: 341) indicates that some degree of reproductive isolation must be a criterion for the species. Two difficulties immediately present themselves: (1) what degree, and (2) how can this be detected? The first can be surmounted by the fact that this must be a subjective decision on the part of the investigator and in most cases some uniformity of treatment can be achieved. My comments with reference to *Colaptes auratus* and *Sphyrapicus ruber* and *S. varius* in this report are the result of this type of decision. The second difficulty presents a larger problem. In the great majority of cases it is impossible to arrive at any conclusion as to lowered vitality or fertility due to crossing of unlike stocks. Nor does it follow that such a circumstance will inevitably result from such a mixture of germ plasm. Such mixtures on many occasions are known to result rather in increased fertility and vitality, even though a psychological barrier to interbreeding may exist under natural conditions.

In some rare instances we may know enough of the historical background of two forms to propose that they are meeting and intergrading after following separate paths of evolution over extended periods. It is possible under these circumstances that a defense could be made for retention of these two stocks at the species level despite their second meeting and intergradation. In the present case and in that of *Colaptes auratus* I do not feel that the facts are at hand to support such action.

As Miller (1941a: fig. 28, and p. 340) indicates, specimens from Clearwater appear to represent a zone of junction between *J. h. hye-*

*malis* and *J. h. montanus*. Four of 26 birds examined by Miller and 5 of 27 which I have examined show the influence of *J. h. hyemalis*, which occurs to the northward. The five McCabe birds show the dark pileum and distinct neck line associated with *J. h. montanus* (and *cismontanus*) and may be the result of mixture of these two races.

## ANNOTATED LIST

### GAVIIDAE

#### GAVIA IMMER IMMER (Brünnich)

Indianpoint Lake: 1 ♂, 22 June.

Ahbau Lake: 1 ♀, 22 May.

These two specimens are considerably larger than those assigned to the following form. The flattened wing of the female is 374 mm., that of the male 385 mm.

#### GAVIA IMMER ELASSON Bishop

Aristazabel Island: 1 ♀, 6 June.

Calvert Island: 2 ♀, 23 May-16 September.

Swanson Bay: 1 ♂ imm. 24 May.

Wing measurements of the two birds taken at Calvert Island are 322 mm. and 332 mm. The young male from Swanson Bay and the unsexed bird from Aristazabel Island measure 335 mm. and 354 mm. These measurements seem to conform to Bishop's (1921) diagnosis of this subspecies.

#### GAVIA ARCTICA PACIFICA (Lawrence)

Fitzhugh Sound: 3 ♂, 4-13 May.

Johnstone Straits: 1 ♂, 2 October.

#### GAVIA STELLATA (Pontoppidan)

Milbanke Sound: 1 ♀, 9 October.

Swanson Bay: 1 ♂, 1 ♀, 23 May-28 June.

The female collected at Swanson Bay on May 23, 1936 was sitting on two eggs and is apparently the specimen previously reported on by McCabe and McCabe (1937).

### COLYMBIDAE

#### COLYMBUS GRISEGENA HOLBÖLLII (Reinhardt)

Anahim Lake: 1 ♂, 1 ♀, 14 May-10 October.

Buffalo Lake: 1 ♂, 26 April.

- Calvert Island: 2 ♀, 5-17 October.  
 Chezacut: 1 ♀, 1 ?, 19 September-4 October.  
 Helmeken Island: 1 ♂, 1 October.  
 Indianpoint Lake: 1 ♀, 11 September.  
 Khutze Inlet: 1 ♀, 7 September.  
 LeRoy Lake: 1 ♂, 23 September.

*COLYMBUS AURITUS* Linné

- Allison Harbor: 2 ♂, 1 ♀, 17 October.  
 Calvert Island: 1 ♂, 26 April.  
 Chezacut: 2 ♂, 26 April-6 October.  
 Emily Group: 1 ♂, 1 ♀, 15 October.  
 Indianpoint Lake: 1 ♀, 12 May.  
 Redstone: 1 ♂, 16 July.  
 Smyth Island: 1 ♀, 11 October.

The male taken at Chezacut on 31 August, 1933 is a bird of the year. All of the specimens collected in October are in winter plumage, the remainder have full breeding plumage.

*COLYMBUS CASPICUS CALIFORNICUS* (Heermann)

- Buffalo Lake: 1 ♂, 1 ♀, 1 ?, 15 May.

*AECHMOPHORUS OCCIDENTALIS* (Lawrence)

- Indianpoint Lake: 1 ♀, 19 October.  
 Johnstone Straits: 2 ♂, 1 October.

*PODILYMBUS PODICEPS PODICEPS* (Linné)

- Chezacut: 1 ♂, 1 ♀, 1 ?, 28 August.  
 Kleena Kleen: 1 ♂, 1 ♀, 18 July.

The specimens from Chezacut are downy young, probably less than two weeks old. The male taken at Kleena Kleen is about one-half grown.

DIOMEDEIDAE

*DIOMEDEA NIGRIPES* Audubon

- Goose Island, 20 miles west: 1 ♂, 1 ♀, 8 July.

PROCELLARIIDAE

*PUFFINUS GRISEUS* (Gmelin)

- Fitzhugh Sound: 3 ♀, 2 ♀, 6 September.  
 Johnstone Channel: 1 ♀, 1 October.  
 Milbanke Sound: 2 ♂, 1 ♀, 18 September.  
 Queen Charlotte Sound: 2 ♂, 2 ♀, 29 August-25 September.  
 Straits of Juan de Fuca: 1 ♂, 16 October.

*PUFFINUS CARNEIPES* Gould

Goose Island, 20 miles west: 2 ♂, 1 ♀, 18 July.

*FULMAREUS GLACIALIS RODGERSI* Cassin

Goose Island, 20 miles west: 1 ♀, 18 July.

## HYDROBATIDAE

*OCEANODROMA FURCATA* (Gmelin)

Fitzhugh Sound: 1 ♂, 11 September.

Galettas Channel: 1 ♀, 5 September.

Hunters Channel: 1 ♀, 16 September.

Johnstone Straits: 2 ♂, 1 ♀, 25-26 August.

Londo Channel: 1 ♀, 6 September.

Milbanke Sound: 1 ♂, 3 ♀, 31 August-18 September.

Rivers Inlet, near Wadham: 1 ♀, 29 August.

*OCEANODROMA LEUCORHOA BEALI* Emerson

Port Hardy: 1 ♂, 29 October.

## PHALACROCORACIDAE

*PHALACROCORAX AURITUS ALBOCILIATUS* Ridgway

Allison Harbor: 2 ♀, 20-21 October.

Calvert Island: 1 ♂, 20 April.

Ragged Islands Pass: 1 ♀, 4 October.

*PHALACROCORAX PENICILLATUS* (Brandt)

Seaforth Channel (Bardswell Ids.): 1 ♂, 18 September.

Off Fort Rupert: 1 ♀, 3 September.

Galettas Channel, off Shusartie: 1 ♀, 5 September.

*PHALACROCORAX PELAGICUS PELAGICUS* Pallas

Fitzhugh Sound: 1 ♀, 15 September.

Price Island: 1 ♂, 18 September.

Tofino: 1 ♂, 26 May.

These specimens all have the large heavy bill (culmen 48-49 mm.) and large size (wing 262-283 mm.) attributed to this form.

*PHALACROCORAX PELAGICUS RESPLENDENS* Audubon

Calvert Island: 1 ♀, 19 May.

Emily Group: 1 ♀, 15 October.

Fitzhugh Sound: 1 ♀, 5 April.

Smyth Island: 1 ♀, 5 October.

Table Island: 1 ♀, 19 September.

Tofino: 1 ♀, 9 May.

I have assigned these specimens to this race on the basis of smaller bills (culmen 41-46 mm.) and shorter wings (238-258 mm.).

## ARDEIDAE

### ARDEA HERODIAS FANNINI Chapman

Bella Coola: 1 ♂, 22 April.

Calvert Island: 1 ♂, 1 ♀, 10-18 September.

Chatfield Island: 1 ♂, 5 August.

LeRoy Lake: 1 ♂, 23 September.

Smyth Island: 1 ♂, 11 October.

The birds from Bella Coola and Chatfield Island appear to be fully adult. The remainder I take to be birds of the year on the basis of plumage.

### BOTARUS LENTIGINOSUS (Montagu)

Chezacut: 2 ♀, 1? 31 August.

In his description of *B. l. pecti*, Brodkorb (1936) indicated that the range of this race extended into British Columbia. One specimen from the Edgewood District and one from Fort Steele were examined by Brodkorb in this connection. In measurements and color the McCabe birds seem to agree with the estimates he furnishes for the eastern population.

Measurements of the two females are as follows: wing, 249, 250; tail, 69 (not complete), 78; exposed culmen, 67, 76; tarsus, 82, 88; middle toe without claw 75, 78. The unsexed bird, apparently a male, has the following measurements: wing, 277, tail 87; exposed culmen 69; middle toe without claw 81.

## ANATIDAE

### BRANTA CANADENSIS OCCIDENTALIS (Baird)

Aristazabel Island: 1 ♂, 1 ♀, 31 May.

Calvert Island: 5 ♀, 23 May-10 September.

Swanson Bay (Khutze Inlet): 3 ♂, 4 ♀, 24 May-3 October.

McCabe indicates that two of the birds taken at Khutze Inlet on May 24, 1936 were mates. One of the females, collected at Calvert Island on May 29, 1933 has a conspicuous brood patch. Included in the above list are two downy young specimens from Khutze Inlet, June 12, 1936.

Delacour (1951) has proposed that the breeding birds of the British Columbian coast are sufficiently larger and different in color from

birds of the Prince William Sound region of Alaska to warrant recognition. He suggests that the name *fulva* be applied to this population. I have compared the McCabe material with specimens taken in the Sitka-Stikene River, and Prince William Sound areas. I am unable to detect the color differences as he has outlined them. In wing length the six females taken by McCabe, which appear to be breeding birds, range from 445 mm. to 472 mm. The two males measure 485 mm. and 490 mm. On the other hand two males from Prince William Sound, Alaska, have wing lengths of 445 mm. and 456 mm. which fall well within the range of the larger form proposed by Delacour as ranging along the coast of British Columbia and southern Alaska.

Delacour gives the measurements of the type of *B. c. occidentalis* as "wing, 463 mm." and culmen "43 mm.", and comments that it is a fairly small bird, very dark reddish in color — of unknown sex. I have not seen this specimen but I am at a loss to understand his evaluation of the measurements as "small". The wing length is within 2 mm. of the maximum which he attributes to this subspecies and is well within the range of the proposed new form which has a minimum wing length of "432 mm."

The culmen measurements given by Delacour (*loc. cit.*) seem to be much more conclusive. There is only one millimeter of overlap shown in his evaluation of the two races. Material examined by me seems to bear out this point. Six females from British Columbia and two from the coast of southeastern Alaska show a range of 45.5 mm. to 50.5 mm. The single female available from Prince William Sound is considerably smaller in culmen length (40.0 mm.). Five males from British Columbia and southeastern Alaska have larger bills (50.5–52.5 mm.) than two from the Prince William Sound region (46.5–47 mm.). The samples at hand are far too small to be conclusive but I am not convinced as to the validity of the race *fulva*. I am inclined to agree with Hellmayr and Conover (1948a: 299) in their conclusion that variation along the Pacific coast is in the nature of a cline with the more northern birds running smaller.

#### BRANTA CANADENSIS MOFFITTI Aldrich

Anahim Lake: 1 ♂, 19 April.

Buffalo Lake: 1 ♀, 15 May.

These specimens are larger (wing 517 and 522 mm.) and much paler than the coastal birds and seem to conform nicely to the description given by Aldrich (1946a).

*BRANTA CANADENSIS MINIMA* Ridgway

Port Hardy: 1 ♀, 23 October.

*BRANTA BERNICLA NIGRICANS* (Lawrence)

Port Hardy: 1 ♂, 1 ♀, 24-25 June.

*ANAS PLATYRHYNCHOS PLATYRHYNCHOS* Linné

Alexis Creek: 1 ♀, 8 October.

Allison Harbor: 2 ♀, 24 October.

Anahim Lake: 3 ♂, 2 ♀, 1 ?, 24 April-8 June.

Chezacut: 7 ♂, 1 ♀, 31 August-5 October.

Cottonwood: 1 ♂, 1 ♀, 15-16 May.

Khutze Inlet: 3 ♂, 3-5 October.

Kliwixi: 1 ♂, 1 November.

100 Mile House: 1 ♂, 28 April.

Phillips Arm: 1 ♂, 5 November.

Two females and one unsexed bird taken at Anahim Lake are downy young about two weeks old. The males taken at Chezacut in August and September are in full eclipse plumage. The remainder are all in winter plumage.

*ANAS STREPERA* (Linné)

Swan Lake: 1 ♂, 2 ♀, 3 September-1 October.

*ANAS ACUTA TZITZIHOA* Vieillot

Chezacut: 3 ♂, 2 ♀, 19-30 September.

Khutze Inlet: 1 ♀, 6 October.

LeRoy Lake: 2 ♀, 22 September.

Lulu Island: 1 ♂, 1 ♀, 5 October.

Moore Islands: 1 ♂, 12 September.

Port Hardy: 1 ♂, 4 ♀, 26 October.

*ANAS CRECCA CAROLINENSIS* Gmelin

Anahim Lake: 1 ♂, 8 June.

Calvert Island: 3 ♀, 5-7 September.

Chezacut: 2 ♂, 4 ♀, 7-28 September.

Cottonwood: 1 ♂, 11 August.

Phillips Arm: 1 ♂, 5 November.

Port Hardy: 6 ♂, 12 ♀, 26-27 October.

Smyth Island: 1 ♀, 22 September.

*ANAS DISCORS* Linné

Anahim Lake: 1 ♂, 10 June.

Chezacut: 5 ♂, 4 ♀, 28 August-14 September.

Indianpoint Lake: 2 ?, 22 June-28 July.



100 Mile House: 1 ♀, 28 April.

The specimens collected in September are all in eclipse plumage. Two birds taken at Indianpoint Lake are downy young.

*MARECA AMERICANA* (Gmelin)

Anahim Lake: 3 ♀, 22 April-3 May.

Chezacut: 9 ♂, 9 ♀, 14-30 September.

Calvert Island: 1 ♀, 25 April.

The specimens taken at Chezacut are changing into winter plumage.

*SPATULA CLYPEATA* (Linné)

Chezacut: 3 ♂, 6 ♀, 31 August-30 September.

The males in this series are all in full eclipse plumage.

*AYTHYA AMERICANA* (Eyton)

Swan Lake: 2 ♂, 30 September-1 October.

*AYTHYA VALISINERIA* (Wilson)

Buffalo Lake: 1 ♀, 26 April.

Mr. McCabe noted on the label that this specimen had one shelled egg in her oviduct.

*AYTHYA MARILA NEARCTICA* (Stejneger)

Calvert Island: 2 ♀, 20 April.

Fraser River, near mouth: 1 ♂, 11 April.

Port Hardy: 2 ♂, 3 ♀, 26-27 October.

*AYTHYA AFFINIS* (Eyton)

Ahbau Lake: 1 ♂, 2 November.

Anahim Lake: 1 ♂, 2 ♀, 2-5 May.

Chezacut: 7 ♂, 5 ♀, 21 August-30 September.

Fraser River Delta: 1 ♂, 27 April.

100 Mile House: 1 ♂, 1 ♀, 3 May.

Phillips Arm: 1 ♂, 5 November.

Seven of the males collected in September at Chezacut, Ahbau Lake and Phillips Arm are young birds showing some down feathers. A single bird apparently a week or two old was taken at Chezacut on August 21, 1933. The adult males from Chezacut are in eclipse plumage.

*BUCEPHALA CLANGULA AMERICANA* (Bonaparte)

Anahim Lake: 4 ♂, 2 ♀, 15 April-12 June.

Chezacut: 1 ♀, 14 September.

Cottonwood: 2 ♀, 16 May-8 August.

Ground Hog Lake, near Barkerville: 1 ♀, 25 July.

Indianpoint Lake: 1 ♀, 30 August.

Phillips Arm: 1 ♀, 5 November.

Swanson Lake, near Swanson Bay: 2 ♀, 9 May.

The female collected at Ground Hog Lake is a bird in downy plumage, about one half grown. One of the females from Swanson Lake had a shelled egg in the oviduct.

#### BUCEPHALA ISLANDICA (Gmelin)

Anahim Lake: 2 ♂, 18 April.

Chezacut: 1 ♂, 28 August.

Corona Lake, Princess Royal Island: 2 ♂, 1 ♀, 21 June.

Cottonwood: 1 ♂, 16 May.

Indianpoint Lake: 2 ♂, 14 May-23 July.

Phillips Arm: 2 ♀, 5 November.

Swanson Bay: 2 ♂, 24 May-? May.

The three specimens from Corona Lake are perhaps less than a week old. A young male about one-half grown was taken at Indianpoint Lake on 23 July, 1930.

#### BUCEPHALA ALBEOLA (Linné)

Anahim Lake: 2 ♂, 1 ♀, 14 April.

Buffalo Lake: 1 ♂, 26 April.

Chezacut: 3 ♂, 4 ♀, 6-30 September.

Indianpoint Lake: 1 ♂, 1 ♀, 26 June-19 October.

Phillips Arm: 2 ♂, 5 November.

Star Lake: 1 ♂, 28 May.

Swanson Bay: 1 ♂, 4 May.

#### CLANGULA HYEMALIS (Linné)

Fraser River Delta, North Channel: 2 ♂, 11 April.

Fraser River Delta, near Vancouver: 1 ♂, 1 ♀, 27 April.

Queen Charlotte Strait, off False Head: 8 ♂, 3 ♀, 30 October-1 November.

#### HISTRIONICUS HISTRIONICUS (Linné)

Allison Harbor: 2 ♂, 1 ♀, 17 October.

Calvert Island: 2 ♂, 4 ♀, 19 May-8 September.

Emily Group: 1 ♂, 15 October.

Smyth Island: 3 ♀, 23 September.

Smyth Island, islets west of: 1 ♂, 9 October.

Swanson Bay: 2 ♂, 2 ♀, 7-21 May.

Table Island: 1 ♂, 1 ♀, 1 ♀, 19-21 September.

Mr. McCabe noted that two of the birds taken at Swanson Bay on May 7, 1936 were mated. The female had yolks up to 35 mm. in diameter present.

The disjunct range of the Harlequin Duck certainly leads one to expect some geographic variation in the species. I have examined considerable material from both the Atlantic and Pacific coastal areas. The table (Table 1) of measurements presented leads me to believe that there is not sufficient difference in size present to allow the recognition of *H. h. pacificus* W. S. Brooks.

Table 1

<i>Locality</i>	<i>No.</i>	<i>Flattened Wing</i>	<i>Culmen</i>	<i>Bill Depth</i>
Atlantic Coast; Greenland, Iceland, coastal United States	32	189-208 (201.1)	24.5-28.0 (26.3)	13.0-15.0 (14.2)
Alaska	16	195-208 (203.8)	26.0-29.0 (26.4)	14.0-16.0 (14.9)
British Columbia	10	197-207 (201.1)	26.0-28.0 (26.9)	14.5-15.0 (14.5)
Japan; Honshu, Hokkaido	9	197-211 (203.7)	26.5-30.0 (29.0)	14.0-15.5 (14.6)
All Pacific coast	35	195-211 (202.8)	26.0-30.0 (27.4)	14.0-16.0 (14.7)

I have examined the type of *pacificus* and, as Brooks (1915) indicated, it is somewhat different in coloration from the average bird taken on the Atlantic Coast. I am convinced, however, that this is due to age or season in this particular skin, in that it does not seem to be representative of the Pacific Ocean birds. The brown stripes on the crown of the type do not extend over the crest of the head as far forward as is usual and the color itself is quite bleached. It appears that the population of the western Pacific averages slightly larger in most measurements. The amount of overlap is such, however, that it is possible to allocate correctly less than 50 per cent of the present sample of 67 specimens. I am grateful to Dr. O. L. Austin, Jr. for furnishing me with measurements of material examined at my request in the American Museum of Natural History collections.

*MELANITTA DEGLANDI* (Bonaparte)

- Allison Harbor: 1 ♂, 17 October.  
 Anahim Lake: 1 ♂, 8 May.  
 Johnstone Straits: 1 ♀, 30 September.  
 Smyth Island: 2 ♂, 9 October.  
 Swanson Bay: 1 ♀, 6 May.

The subspecies *dixonii* described by W. S. Brooks (1915: 393) might logically be expected to occur in British Columbia. Upon examination of specimens from the Atlantic and Pacific coasts I agree with Conover in Hellmayr and Conover (1948a: 393) that there is no geographical significance in bill variation.

*MELANITTA PERSPICILLATA* (Linné)

- Allison Harbor: 1 ♂, 17 October.  
 Calvert Island: 1 ♀, 8 September.  
 Indianpoint Lake: 1 ♂, 1 ♀, 25-26 May.  
 Khutze Inlet: 2 ♂, 2 ♀, 4-8 October.  
 Smyth Island: 1 ♂, 8 October.  
 Swanson Bay: 4 ♂, 4-14 May.

*OIDEMIA NIGRA AMERICANA* Swainson

- Allison Harbor: 1 ♂, 17 October.

*OXYURA JAMAICENSIS RUBIDA* (Wilson)

- Buffalo Lake: 1 ♂, 1 ♀, 15 May.

*LOPHODYTES CUCULLATUS* (Linné)

- Allison Harbor: 1 ♂, 1 ♀, 17-20 October.  
 Allison Harbor, Shelter Bay: 4 ♀, 21 October.  
 Aristazabel Island: 1 ♂, 4 June.  
 Calvert Island: 1 ♀, 18 September.  
 Indianpoint Lake: 1 ♀, 26 September.  
 North Thompson River, above Kamloops: 1 ♀, 12 May.  
 Klekane Inlet: 1 ♀, 1 July.  
 Yule Lake: 3 ♂, 2 ♀, 18 June.

Downy young specimens from Aristazabel Island, Klekane Inlet and Yule Lake are tentatively assigned here.

*MERGUS MERGANSER AMERICANUS* Cassin

- Clearwater: 1 ♀, 15 May.  
 Khutze Inlet: 1 ♂, 24 May.  
 Koeve River: 1 ♀, 12 September.  
 Phillips Arm: 1 ♀, 5 November.  
 Swanson Lake, near Swanson Bay: 1 ♂, 1 ♀, 2-9 May.

The female taken at Clearwater in 1935 was noted as "sitting on 8 eggs — full clutch."

*MERGUS SERRATOR SERRATOR* (Linné)

Allison Harbor: 1 ♂, 20 October.  
 Calvert Island: 1 ♂, 2 ♀, 21 May–3 June.  
 Koeve River: 2 ♂, 12 September.

ACCIPITRIIDAE

*ACCIPTER GENTILIS ATRICAPILLUS* (Wilson)

Alexis Creek: 1 ♀, 26 August.  
 Bowron Lake: 1 ♂, 1 ♀, 13 September, fall of 1929–30.  
 Chezacut: 4 ♂, 2 ♀, 1 ♀, 4 September–2 October.  
 Cottonwood: 2 ♂, 27 August–13 November.  
 Indianpoint Lake: 3 ♂, 1 ♀, 30 July–29 September.  
 Kleena Kleen: 1 ♀, 21 August.  
 Khutze Inlet: 1 ♀, 6 October.

*ACCIPTER GENTILIS LAINGI* (Taverner)

Chezacut: 1 ♂, 29 September.  
 Hope Island: 1 ♀, 28 June.

Munro and Cowan (1947: 77–78) state that they find no conclusive evidence proving the existence of two races of the Goshawk in British Columbia. They further comment that no examples of breeding birds were available for examination but that the young of the year specimens from the Queen Charlotte Islands are more heavily marked than specimens of comparable age taken in the interior. Hellmayr and Conover (1949: 49–51) after examination of 83 specimens of *A. g. atricapillus* and 12 of *laingi* conclude that *laingi* is a valid subspecies. These authors indicate their ideas as to the random wandering of the two subspecies by listing specimens of both from inland and coastal localities in British Columbia. The two specimens listed here are considerably darker than those assigned to *atricapillus* in the present collection as well as seven additional specimens in the Museum of Comparative Zoology.

*ACCIPTER STRIATUS PEROBSCURUS* Snyder

Anahim Lake: 2 ♂, 11–26 April.  
 Bowron Lake: 1 ♂, 7 September.  
 Chezacut: 1 ♀, 16 September.  
 Indianpoint Lake: 10 ♂, 3 ♀, 20 April–23 September.

The population represented by this series of specimens I take to be closer to *perobseurus* than to *A. s. velox*. Compared with birds taken in the eastern United States they are definitely darker. They are not as heavily streaked in juvenal plumage as five birds from the Queen Charlotte Islands which were available for comparison.

ACCIPTER COOPERI (Bonaparte)

Bowron Lake: 1 ♀, 3 September.

Clearwater: 1 ♂, 1 May.

Indianpoint Lake: 1 ♂, 24 August.

The single male taken at Clearwater is an adult bird. The other two are birds of the year.

BUTEO JAMAICENSIS CALURUS Cassin

Bowron Lake: 1 ♀, 22 September.

Kleena Kleen: 1 ♂, 20 August.

100 Mile House: 1 ♀, 22 July.

Ten Mile Creek: 1 ♀, 13 August.

Wing length of the two females is 365 mm. and 382 mm. The single male measures 370 mm., while the unsexed bird has a wing length of 388 mm.

BUTEO JAMAICENSIS ALASCENSIS Grinnell

Calvert Island: 1 ♂, 27 May.

A bird of the year, this specimen has a wing length of 359 mm. Taverner (1936) has indicated that he finds this size difference in the coastal birds to be diagnostic.

BUTEO SWAINSONI Bonaparte

Cottonwood: 1 ♀, 13 August.

HALIAETUS LEUCOCEPHALUS WASHINGTONIENSIS (Audubon)

Indianpoint Lake: 1 ♂, 2 ♀, 16 July-5 August.

CIRCUS CYANEUS HUDSONIUS (Linné)

Anahim Lake: 2 ♀, 22-24 April.

Bowron Lake: 1 ♂, 4 August.

Chezacut: 1 ♀, 29 August.

Williams Creek: 1 ♂, 17 August.

PANDION HALIAETUS CAROLINENSIS (Gmelin)

Jack o' Clubs Creek: 1 ♂, 6 August.

## FALCONIDAE

## FALCO PEREGRINUS PEALI Ridgway

McKenny Islands: 1 ♂, 3 ♀, 6 June.

Moore Islands: 2 ♂, 4 ♀, 2-6 June.

Two adult specimens from the McKenny Islands were apparently the parents of two downy young females also collected by McCabe. One of the males collected on the Moore Islands is adult, the remainder are nestlings.

## FALCO COLUMBARIUS SUCKLEYI Ridgway

Indianpoint Mountain: 1 ♀, 4 August.

This immature, unsexed specimen is very heavily streaked and agrees well with birds taken along the coast of British Columbia.

## FALCO COLUMBARIUS BENDIEREI Swann

Indianpoint Lake: 2 ♂, 1 ♀, 12 August-15 September.

All of these specimens are in immature plumage and are much lighter in coloration than the single specimen assigned to *F. c. suckleyi*.

## FALCO SPARVERIUS SPARVERIUS Linné

Anahim Lake: 1 ♀, 3 May.

Barkerville: 1 ♀, 17 August.

Chezacut: 2 ♂, 2 ♀, 2-5 September.

Clearwater: 3 ♂, 1 ♀, 19 April-23 May.

Crowsnest Pass: 2 ♂, 1 ♀, 6 September.

Indianpoint Lake: 2 ♂, 2 ♀, 17 July-12 August.

In the course of investigating the possibility of east-west geographic variation in this species I examined some of the material used by Bond (1943: 179) in his description of *F. s. guadalupensis*. The results of this rather cursory, non-statistical examination are included here. Five of the six males (including the type) and all of the females used by Bond were available to me. All of these skins were made by W. W. Brown and I believe that Bond's detection of the "light collar" is due to "make" of skin rather than to geographical variation. All of the skins are uniform in design with well-extended and padded necks which I think tends to produce a light appearance in the collar. All of the adults (6) are in worn plumage which probably further aggravates this bleached appearance. As Bond points out, his proposed form does not differ significantly from *F. s. sparverius* in mensural characters. My measurements of wing length in 68 males from British Columbia, California, the Great Basin, and the eastern United States agree with

this conclusion. I found a range of 177 mm. to 196 mm. in this sample whereas the same measurement in the five Guadalupe Island birds ranged from 178 mm. to 194 mm. Perhaps examination of a larger series of birds from Guadalupe Island will establish the validity of this form but on the basis of material at hand I do not feel that it is worthy of recognition.

## TETRAONIDAE

### DENDRAGAPUS OBSCURUS RICHARDSONI (Douglas)

Clearwater: 1 ♂, 16 May.

Bowron Lake: 1 ♂, 2 ♀, 23 June.

Grizzly Park (near Clearwater): 2 ♂, 26 May-9 June.

Indianpoint Lake: 3 ♂, 5 ♀, 1 ? 24 May-6 August.

Specimens collected at Bowron Lake in 1933 are newly hatched chicks with egg teeth. Those taken at Indianpoint Lake on July 14, 1929 (2) are still in full down plumage while an additional two collected on July 30, 1930 are about one-fourth grown.

The material collected by McCabe indicates that the Clearwater — Indianpoint Lake region is along the line of junction of *D. o. richardsoni* and *D. o. pallidus*. Specimens typical of each of these races were collected in the vicinity of Clearwater.

### DENDRAGAPUS OBSCURUS PALLIDUS Swarth

Alkali Lake: 1 ♀, 15 June.

Clearwater: 1 ♂, 16 May.

Clinton: 2 ♂, 1 ♀, 20 April-8 May.

Corbin: 3 ♀, 4 September.

Crowsnest Pass: 5 ♀, 5-6 September.

Dog Creek: 1 ♀, 15 June.

Hanceville: 1 ♂, 15 October.

Lillooet: 2 ♀, 21 June.

127 Mile House: 1 ♂, 5 July.

Williams Lake: 1 ♀, 9 July.

Downy young birds were collected at 127 Mile House and at Lillooet (1). I find that the birds from southwestern localities, Corbin and Crowsnest Pass, are referable to *pallidus* rather than *richardsoni* as indicated by Munro and Cowan (1947: 88).

### DENDRAGAPUS OBSCURUS SITKENSIS Swarth

Banks Island: 4 ♀, 18-19 August.

Bella Coola: 6 ♂, 23 April-11 June.



Calvert Island: 3 ♂, 8 ♀, 16 May-18 September.

Princess Royal Island: 1 ♂, 2 ♀, 28 September.

Smyth Island: 1 ♂, 2 ♀, 23-24 August.

Stuie: 2 ♂, 27 May.

Swanson Bay: 3 ♂, 5 ♀, 5 May-26 September.

A female collected at Swanson Bay on May 5, 1936 had laid one egg and a second was present in the oviduct. Mr. McCabe noted that another female taken at the same locality on June 23, 1936 was the parent of a half-grown chick taken at the same time.

The two females collected on Smyth Island (Bardswell group) seem to be from the southern limit of this race, showing a tendency toward *D. o. fuliginosus*. I found no demonstrable difference in the males of *fuliginosus* and *sitkensis* and these birds are assigned here on the basis of locality.

#### CANACHITES FRANKLINII (Douglas)

Alexis Lake: 1 ♀, 12 July.

Anahim Lake: 3 ♂, 21 April-7 June.

Bowron Lake: 5 ♂, 1 ♀, 1 ?, 29 June-4 September.

Barkerville: 1 ♂, 1 ♀, 29 May.

Chezacut: 2 ♂, 3 ♀, 2-16 September.

Cottonwood: 1 ♂, 1 ♀, 24 July.

Donald, 28 mi. north: 1 ♂, 25 September.

Indianpoint Lake: 12 ♂, 2 ♀, 1 ?, 28 March-14 September.

Isaac Lake: 1 ♂, 1 ♀, 15-18 July.

Kleena Kleen: 3 ♂, 2 ♀, 17 July-23 August.

Quesnel: 1 ♀, 23 July.

Rainbow Mountains: 3 ♀, 18-22 June.

Star Lake: 3 ♀, 28 May-11 June.

Stuie (Caribou Mountain): 1 ♀, 29 May.

Summit Lake: 1 ♀, 30 April.

Downy young and one-half to three-quarter grown birds were collected throughout the area during June-August.

#### BONASSA UMBELLUS UMBELLOIDES (Douglas)

Alexis Lake: 1 ♀, 12 July.

Anahim Lake: 4 ♂, 2 ♀, 29 April-9 June.

Barkerville: 1 ♂, 6 September.

Blackpool (near Clearwater): 1 ♀, 2 May.

Bowron Lake: 1 ♂, 1 ♀, 1 ?, 8 July-5 October.

Bull Canyon (near Alexis Creek): 1 ♀, 6 April.

Chezacut: 2 ♂, 4 ♀, 5 September-4 October.

Clearwater: 4 ♂, 7 ♀, 19 April-9 June.

Cottonwood: 2 ♂, 1 ♀, 1 ?, 14 March-5 November.

Indianpoint Lake: 7 ♂, 2 ♀, 11 April-27 December.

La Fontaine (near Barkerville): 1 ♂, 17 March.

100 Mile House: 1 ♂, 3 ♀, 24 April-4 May.

Quesnel: 1 ♀, 23 June.

Soda Creek: 1 ♂, 8 September.

A single downy young specimen, less than a week old, was collected at Clearwater on June 9, 1935. Other young birds, one-quarter to one-third grown were taken at Indianpoint Lake (1), Quesnel (1), Cottonwood (1) and Bowron Lake (2) during June and July, 1930-31. Three of the specimens from Chezacut, 5-16 September, were moulting primaries and/or rectrices.

Arbitrary classification into two color phases shows 8 in "brown phase" and 34 in "gray phase".

Aldrich and Friedmann (1943) in their revision of the Ruffed Grouse have proposed a new subspecies, characterized by short tarsal feathering and dark pigmentation, as inhabiting central British Columbia. This form, *affinis*, is suggested as ranging from mid-central British Columbia well south into southern Washington and Oregon. I am not concerned with denying or corroborating the validity of *B. u. affinis* as it may occur in the southern parts of its range, but have considered the problem only as it affects British Columbian populations. The 40 skins suitable for comparative purposes collected by Mr. McCabe, were compared with a series from the eastern slopes of the Rocky Mountains in Alberta. I see no constant color differences between the Alberta (*B. u. umbelloides*) and British Columbian material. Nine of the 40 birds show an unfeathered tarsus for more than one-half its length. The degree of feathering does not seem to be associated with any special variation in pigmentation. I feel that the evidence shows that the population represented by this sample must be referred to *B. u. umbelloides*.

#### BONASSA UMBELLUS BRUNNESCENS CONOVER

Bella Coola: 6 ♂, 4 ♀, 25 April-25 June.

LeRoy Bay: 1 ♂, 1 ♀, 23-24 September.

Stuie: 1 ♀, 27 May.

These specimens are clearly referable to the dark brown race of the southwestern coast.

Five downy young, three to four days old, the offspring of a female collected at Bella Coola are of interest. These chicks are easily distinguished from 13 comparable birds taken in the eastern United States

within the ranges of *B.u. umbellus* and *B.u. togata*. The brown markings of the head are much darker in the western specimens. The dark line over the eye is extended well forward of the orbit and a small brown spot occurs at the lateral base of the upper mandible. There is also a middorsal darkening on the forehead which appears as a dark stripe extending from the base of the mandible to the crown. The possibility exists of course that this variation is limited to this particular brood.

#### LAGOPUS LAGOPUS LAGOPUS (Linné)

Rainbow Mountains: 3 ♂, 1 ♀, 17 June.

The differences attributed to *L. l. albus* by various authors, as outlined by Friedmann in Ridgway (1946), are, as far as I can determine, not associated with geographic location. In addition to the material in the McCabe collection I have examined 13 other specimens from the Bella Coola District and I am unable to detect any constancy of color variation in these birds as compared to birds of Old World origin. As to slenderness of the bill, seven males from British Columbia measure 12.7–14.6 mm. (av. 13.8 mm.). Eight males from inland Alaska range from 13.1 mm. to 15.0 mm. (av. 13.8 mm.). Seven males from Siberia, Sweden and Lapland have bill widths from 12.9 mm. to 14.1 mm. (av. 13.6 mm.).

#### LAGOPUS MUTUS RUPRESTRIS (Gmelin)

Bella Coola: 5 ♂, 2 ♀, 11–25 June.

Yule Lake: 2 ♂, 24 June.

These specimens were taken on "Mt. N. E. of Bella Coola" and "Peaks North of Yule Lake, Swanson Bay."

#### LAGOPUS LECURUS LECURUS (Richardson)

Rainbow Mountains: 1 ♂, 20 June.

Indianpoint Lake: 5 ♂, 1 ♀, 2 ♀, 27 May–3 September.

The two unsexed birds and one of the females collected at Indianpoint Lake July 14–31 are young of the year about one-third grown.

#### PEDIOECETES PHASIANELLUS COLUMBIANUS (Ord)

Alexis Creek: 1 ♂, 2 ♀, 6 October.

Anahim Lake: 4 ♂, 3 ♀, 17 April–10 June.

Chezacut: 4 ♀, 28 August–26 September.

Lac la Hache: 1 ♀, 5 July.

100 Mile House: 3 ♀, 21–22 April.

127 Mile House: 1 ♂, 5 July.

Quesnel, 33 mi. south: 1 ♀, 3 July.

## GRUIDAE

*GRUS CANADENSIS TABIDA* Peters

Aristazabel Island: 1 ♂, 1 ♀, 14 September.

## RALLIDAE

*PORZANA CAROLINA* (Linné)

100 Mile House: 1 ♂, 29 April.

127 Mile House: 1 ♂, 4 July.

*FULICA AMERICANA AMERICANA* Gmelin

Indianpoint Lake: 1 ♂, 19 October.

## HAEMATOPIDAE

*HAEMATOPUS OSTRALEGUS BACHMANNI* Audubon

Ann Island: 1 ♂, 1 ♀, 14 October.

Calvert Island: 2 ♂, 1 ♀, 18-23 May.

Goose Island: 1 ♂, 30 May.

Lama Passage at Fisher Channel: 1 ♂, 1 ♀, 16 September.

Moore Island: 3 ♂, 2 ♀, 6 June-6 July.

Schooner Passage, Rivers Inlet: 1 ♂, 1 ♀, 30 August.

Nesting on the islets near Moore Island is indicated by three downy young collected there on June 6, 1936.

## CHARADRIIDAE

*SQUATAROLA SQUATAROLA* (Linné)

Calvert Island: 1 ♂, 16 May.

Hardy Bay: 1 ♂, 1 ♀, 30 September.

Ione Island: 2 ♂, 17 April.

Poultney Point, Kliwixi marshes: 1 ♂, 1 November.

Siwash Meadows, near Alexis Creek: 2 ♀, 19 September.

*CHARADRIUS HIATICULA SEMIPALMATUS* Bonaparte

Calvert Island: 8 ♂, 2 ♀, 25 April-17 July.

*CHARADRIUS VOCIFERUS VOCIFERUS* (Linné)

Alexis Creek: 1 ♂, 2 April.

Anahim Lake: 1 ♂, 1 ♀, 10 June.

Barkerville: 1 ♂, 2 ♀, 28 May.

Chezacut: 2 ♀, 5-28 September.

Port Hardy: 1 ♀, 28 October.

One of the females collected at Barkerville on May 28, 1930 is a juvenal, still in downy plumage.

## SCOLOPACIDAE

## APHRIZA VIRGATA (Gmelin)

- Allison Harbor: 1 ♂, 20 October.  
 Calvert Island: 5 ♂, 3 ♀, 5 September.  
 Haystack Island: 1 ♂, 1 ♀, 29 August.  
 Koeve River: 1 ♀, 12 September.  
 Shelter Bay, near Allison Harbor: 1 ♂, 19 October.

## ARENARIA MELANOCEPHALA (Vigors)

- Allison Harbor: 1 ♂, 2 October.  
 Hakai Passage: 1 ♀, 17 July.  
 Haystack Island: 3 ♂, 4 ♀, 29 August.  
 Hurst Island: 1 ♀, 25 September.  
 Koeve River: 1 ♂, 12 September.  
 Schooner Passage: 1 ♀, 30 August.  
 Poultney Point Light: 11 ♂, 27 August.

## CAPELLA DELICATA (Ord)

- Anahim Lake: 2 ♂, 1-5 May.  
 Bella Coola: 1 ♂, 1 ♀, 3 May-14 September.  
 Bowron Lake: 1 ♀, 6 October.  
 Calvert Island: 1 ♂, 28 April.  
 Chezacut: 1 ♂, 1 ♀, 14-23 September.  
 Cottonwood: 1 ♀, 7 September.  
 Indianpoint Lake: 2 ♂, 28 April-6 July.  
 Lac la Hache: 2 ♂, 5-6 July.  
 Port Hardy: 1 ♂, 3 ♀, 26-28 October.

## NUMENIUS AMERICANUS PARVUS Bishop

- Dog Creek: 4 ♂, 15 June.

## NUMENIUS PHAEOPUS HUDSONICUS Latham

- Ione Island: 1 ♀, 27 April.

## ACTITIS MACULARIA (Linné)

- Anahim Lake: 1 ♂, 10 June.  
 Barkerville: 2 ♂, 2 ♀, 5 June-13 July.  
 Beaver Sound, Big Muskeg: 1 ♀, 31 May.  
 Bowron Lake: 1 ♀, 30 June.  
 Calvert Island: 1 ♂, 4 ♀, 23 May-9 September.  
 Chezacut: 1 ♀, 4 September.  
 Indianpoint Lake: 1 ♂, 3 ♀, 24 May-26 June.  
 Isaac Lake: 1 ♀, 19 July.  
 Koeve River: 1 ♀, 12 September.

Princess Royal Id., Canoona Lake: 1 ♀, 21 June.

Schooner Passage: 1 ♂, 20 May.

Swanson Bay: 2 ♂, 4 ♀, 19-23 May.

All of the specimens collected during September are in fall plumage.

*TRINGA SOLITARIA SOLITARIA* Wilson

Indianpoint Lake: 3 ♂, 2 ♀, 15 May-5 July.

Rainbow Mountains: 1 ♂, 17 June.

Selina Lake: 1 ♂, 1 ♀, 30 June.

*TRINGA SOLITARIA CINNAMOMEA* (Brewster)

Chezacut: 2 ♀, 2 September.

Indianpoint Lake: 1 ♂, 23 August.

*TRINGA MELANOLEUCUS* (Gmelin)

Alexis Creek: 2 ♂, 20 July.

Anahim Lake: 2 ♂, 18 April-6 May.

Calvert Island: 2 ♂, 2 ♀, 24 April-27 May.

Goose Island: 1 ♀, 23 July.

Kleena Kleen: 1 ♂, 17 July.

Lac la Hache: 1 ♂, 7 July.

Lulu Island: 1 ♂, 5 October.

Quesnel: 1 ♂, 2 July.

*TRINGA FLAVIPES* (Gmelin)

Goose Island: 1 ♀, 20 July.

Jack o' Clubs Creek: 2 ?, 5 August.

*HETEROSCELUS INCANUS* (Gmelin)

Calvert Island: 7 ♂, 3 ♀, 2 May-3 September.

Dufferin Island: 1 ♀, 29 July.

Horsfall Island: 1 ♀, 28 July.

St. Johns Harbor (Bardswell Ids.): 1 ♂, 23 August.

Table Island: 1 ♀, 19 September.

All of the specimens taken in August and September (3) are in fall plumage.

*CALIDRIS CANUTUS RUFUS* (Wilson)

Fitzhugh Sound, off Calvert Id.: 2 ♂, 1 ♀, 17 May.

*CROCETHIA ALBA* (Pallas)

Calvert Island: 4 ♂, 7 ♀, 15 April-10 September.

Goose Island: 1 ♀, 20 July.

Ione Island: 2 ♂, 2 ♀, 15 April.

## LIMNODROMUS GRISEUS CAURINUS Pitelka

Calvert Island: 6 ♂, 4 ♀, 1-4 May.

Hakai Pass: 1 ♂, 17 July.

The females in this series have measurements as follows: wing 149.0 mm.-152.5 mm.; culmen 61.0 mm.-64.0 mm.; tarsus 35.5 mm.-39.0 mm. Males measure as follows: wing 140.0 mm.-151.0 mm.; culmen 55.0 mm.-59.0 mm.; tarsus 34.0 mm.-37.5 mm. These measurements seem to conform to Pitelka's (1950: 43) estimate of the population which he has designated as *L. g. caurinus*.

## LIMNODROMUS SCOLOPACEUS (Say)

Lulu Island: 2 ♀, 5 October.

Wing lengths of 140.0 mm. and 141.0 mm., culmens 73.0 mm. and 75.0 mm., tarsi 41.5 mm. and 38.5 mm. fall within the limits of variation for this form as given by Pitelka (1950).

## EROLIA PTILOCNEMIS TSCHUKTSHORUM (Portenko)

Port Hardy: 5 ♂, 30 October-1 November.

These specimens are all in winter plumage. Two birds have not quite completed the moult and retain a few brown-tipped and edged feathers in the secondary coverts and scapulars. These are quite dark and reddish.

## EROLIA BAIRDII (Coues)

Calvert Island: 1 ♂, 10 September.

Fraser River delta: 2 ♂, 11 April.

100 Mile House: 1 ♂, 30 April.

## EROLIA MELANOTOS (Vieillot)

Calvert Island: 1 ♀, 9 September.

Chezacut: 7 ♂, 3 ♀, 9 September-4 October.

Port Hardy: 1 ♀, 28 October.

Poultney Point: 2 ♂, 30 September.

Vancouver Island: 1 ♀, 30 September.

## EROLIA MINUTILLA (Vieillot)

Anahim Lake: 1 ♂, 15 May.

Calvert Island: 4 ♂, 4 ♀, 25 April-22 May.

Chezacut: 1 ♂, 2 ♀, 5-15 September.

Indianpoint Lake: 1 ♂, 13 August.

100 Mile House: 4 ♂, 30 April-4 May.

*EROLIA ALPINA PACIFICA* (Coues)

- Calvert Island: 1 ♂, 4 ♀, 1-19 May.  
 Fitzhugh Sound (Schooner Pass): 6 ♀, 17 May-28 October.  
 Ione Island: 3 ♂, 2 ♀, 1 ?, 17 April.  
 Port Hardy: 2 ♂, 1 ?, 25 October.  
 Swanson Bay: 6 ♂, 3 ♀, 15-22 May.  
 Tofino: 1 ♂, 17 May.

The birds collected in September and October are in fall plumage.

*EREUNETES MAURII* Cabanis

- Calvert Island: 21 ♂, 22 ♀, 14 May-10 September.  
 Chezacut: 1 ♀, 5 September.  
 Koeve River: 3 ♂, 1 ♀, 15 September.  
 Swanson Bay: 2 ♂, 15-22 May.

All of the specimens taken in September are in fall plumage.

*EREUNETES PUSILLUS* (Linné)

- Calvert Island: 7 ♂, 1 ♀, 14 May-18 September.  
 Indianpoint Lake: 1 ♂, 18 August.

All of the birds collected in August and September are in fall plumage.

## PHALAROPODIDAE

*STEGANOPUS TRICOLOR* (Vieillot)

- Lac la Hache: 1 ♂, 5 July.  
 127 Mile House: 2 ♂, 4 July.

*PHALAROPUS FULICARIUS* (Linné)

- Lama Pass (Hunter and Campbell Ids.): 1 ♂, 16 September.  
 Storm Islands: 12 ♂, 1 ♀, 1 ?, 25 September.  
 Stuart Island: 1 ♂, 1 September.

*LOBIPES LOBATUS* (Linné)

- Alert Bay: 1 ♀, 3 September.  
 Beauchemin Pass, N. W. Aristazabel Id.: 1 ♂, 1 ♀, 30 May.  
 Calvert Island: 2 ♀, 17 May.  
 Churchouse: 1 ♂, 1 September.  
 Galetas Channel, off Shushartie: 2 ♂, 5 September.  
 Hunter Channel, Hunter and Campbell Ids.: 2 ♀, 16 September.  
 Johnstone Straits: 5 ♂, 6 ♀, 26 August-2 October.  
 Milbanke Sound: 1 ♀, 9 October.  
 Storm Islands: 1 ♀, 25 September.  
 Stuart Island: 3 ♀, 1 September.



## STERCORARIDAE

## STERCORARIUS PARASITICUS (Linné)

Fraser River Delta: 5 ♂, 29 September.

Steviston: 3 ♂, 3 ♀, 8 October.

Vancouver, Point Gray: 1 ♂, 9 October.

## STERCORARIUS LONGICAUDA (Vieillot)

Rainbow Mountains: 1 ?, 21 June.

This specimen, a mummy, was found dead in 1932.

## LARIDAE

## LARUS HYPERBOREUS Gunnerus

Bella Coola: 1 ♂, 4 May.

## LARUS GLAUDESCENS Naumann

Calvert Island: 1 ♂, 1 ♀, 24 May-17 September.

Swanson Bay: 1 ♀, 21 May.

## LARUS ARGENTATUS SMITHSONIANUS Coues

Anahim Lake: 1 ♀, 8 May.

Bella Coola: 2 ♀, 3 May.

These birds are in fourth year plumage and are typical of this race. The specimens listed below would most logically be of this form, but because they are in first and second year plumage I hesitate to make a definite allocation.

Bella Coola: 1 ♀, 1 ♀, 3 May.

Chezacut: 2 ♂, 1 ♀, 14-30 September.

## LARUS CALIFORNICUS Lawrence

Calvert Island: 1 ♂, 2 ♀, 20 May-5 September.

These specimens are in fourth year plumage.

## LARUS DELAWARENSIS Ord

Straits of Juan de Fuca: 5 ♀, 14 October.

## LARUS CANUS BRACHYRHYNCHOS Richardson

Ahbau Lake: 1 ♂, 14 August.

Bella Coola: 4 ♂, 8 May.

Calvert Island: 2 ♂, 1 ♀, 22-29 May.

Haystack Island: 3 ♂, 29 August.

Indianpoint Lake: 3 ♂, 3 ♀, 11 May-17 July.

Swanson Bay, Yule Lake: 1 ♂, 2 ♀, 19 June.

Nesting at Yule Lake in 1936 is indicated by two downy young birds collected on June 19.

## LARUS PHILADELPHIA (Ord)

Anahim Lake: 1 ♂, 30 April.

Bella Coola: 2 ♀, 7 May.

Chezacut: 2 ♂, 24 September.

Indianpoint Lake: 2 ♀, 11 May-10 July.

## LARUS HEERMANNI Cassin

Straits of Juan de Fuca: 2 ♂, 14 October.

## RISSA TRIDACTYLA POLLICARIS Ridgway

Camaaño Sound: 1 ♂, 17 September.

Laredo Channel: 2 ♂, 5 ♀, 5 October.

## STERNA HIRUNDO HIRUNDO Linné

Fraser River Delta and vicinity: 12 ♂, 8 ♀, 27 April-8 October.

## STERNA PARADISAEA Pontoppidan

Goose Island Banks: 1 ♂, 18 July.

Indianpoint Lake: 3 ♀, 27 August.

## ALCIDAE

## URIA AALGE INORNATA Salomonsen

Johnstone Straits: 1 ♂, 26 August.

Queen Charlotte Sound: 1 ♂, 1 ♀, 25 September.

These birds were collected during the period in which they were undergoing a moult of primaries. The specimen taken in August is completely without primaries and the September birds have not as yet regained fully grown feathers. They are arbitrarily assigned to this subspecies on the basis of locality.

## CEPPHUS COLUMBA ssp.

Calvert Island: 3 ♂, 2 ♀, 3-8 September.

Sointula: 1 ♂, 27 August.

Due to the fact that these specimens are all undergoing moult of primaries it is impossible to determine wing length. Culmen length alone is not sufficient to allow separation of *C. c. columba* and *C. c. adianata* according to Storer (1950).

## CEPPHUS COLUMBA ADIANATA Storer

Calvert Island: 2 ♀, 17-19 May.

Swanson Bay: 1 ♀, 14 May.

Culmen measurements of 34.5 mm. and 35.0 mm. conform to Storer's (1950) description of the British Columbian population.

*CEPPHUS COLUMBA KAIKURA* Portenko

Lund: 1 ♀, 24 August.

This bird is in badly bleached, worn breeding plumage. I do not believe that wing length is materially affected by wear, however, and the shortness of wing (174.0 mm.) combined with a short damaged culmen which I think could not have been more than 32 mm., dictates assignment to this subspecies.

*BRACHYRAMPHUS MARMORATUS MARMORATUS* (Gmelin)

Bella Coola: 1 ♂, 1 ♀, 2 July.

Calvert Island: 3 ♂, 24 August–4 September.

Cortez Island: 1 ♂, 1 September.

Graham Reach: 1 ♀, 1 July.

Harwood Island: 1 ♂, 1 September.

Johnstone Straits: 2 ♂, 6 ♀, 26 August–2 October.

Ragged Islands Pass: 1 ♂, 2 ♀, 24 August.

Sliammon Indian Village: 1 ♂, 1 ♀, 24 August.

Smyth Island: 1 ♀, 24 September.

Swanson Bay: 5 ♂, 4 ♀, 6–23 May.

McCabe noted ova up to 15 mm. in diameter in the birds collected at Swanson Bay in May, 1936. A young male and female were taken at Ragged Islands Pass on August 24, 1934 with egg teeth in place.

*SYNTHLIBORAMPHUS ANTIQUUS* (Gmelin)

Beauchemin Pass: 1 ♂, 2 ♀, 30 May–2 June.

Poultney Point Light: 1 ♂, 2 ♀, 27 August.

*PTYCHORAMPHUS ALEUTICUS ALEUTICUS* (Pallas)

Beauchemin Pass: 1 ♂, 2 June.

Milbanke Sound: 3 ♂, 3 ♀, 18 September.

Queen Charlotte Sound: 3 ♂, 2 ♀, 25 September.

*CERORHINCA MONOCERATA* (Pallas)

Beauchemin Pass: 1 ♀, 2 June.

Calvert Island: 4 ♂, 5 ♀, 30 August–11 September.

Cape Calvert: 2 ♂, 20 April.

Cape Cockburn, 1 ♀, 24 August.

Johnstone Straits: 5 ♂, 1 ♀, 25 August–2 October.

Milbanke Sound: 1 ♂, 1 ♀, 18 September.

Poultney Point: 1 ♀, 30 September.

Queen Charlotte Sound: 2 ♀, 25 September.

*LUNDA CIRRHATA* (Pallas)

Moore Island: 5 ♂, 2 ♀, 2–6 June.

## COLUMBIDAE

## COLUMBA FASCIATA MONOLIS Vigors

Bella Coola: 1 ♂, 28 June.

Sumas, Vedder Mountain: 1 ♀, 25 September.

The wing of the male specimen measures 219.0 mm., the female 201.0 mm. The female is apparently a bird of the year and this probably explains its falling well short of the minimum measurement given by Brodtkorb (1943). In both specimens the tenth primary is considerably longer than the seventh. In the male this excess measurement is 7.0 mm., in the female 16.0 mm.

## ZENAIDURA MACROURA MARGINELLA (Woodhouse)

Indianpoint Lake: 1 ♀, 25 May.

Lillooet: 1 ♀, 23 June.

Lytton: 1 ♀, 21 June.

## TYTONIDAE

## OTUS ASIO KENNICOTTI (Elliot)

Princess Royal Island: 1 ♂, 19 May.

## BUBO VIRGINIANUS LAGOPRONUS (Oberholser)

Anahim Lake: 1 ♂, 24 April.

Chezacut: 1 ♂, 3 ♀, 1 ?, 4 September–12 October.

Cottonwood: 1 ♂, 1 ♀, 9 November.

Indianpoint Lake: 5 ♂, 6 ♀, 25 June–23 October.

Five of the males and two of the females collected at Indianpoint Lake between July 7 and August 8 are juvenals approximately one-half to three-quarters grown.

## BUBO VIRGINIANUS SATURATUS Ridgway

Indianpoint Lake: 1 ♂, 4 September.

Stuie: 1 ♂, 30 June.

The single male collected at Indianpoint Lake in 1930 has the dark face and back associated with this subspecies. Apparently it had wandered far inland from its normal range along the coast.

## SURNIA ULULA CAPAROCH (P. L. S. Müller)

Anahim Lake: 1 ♂, 11 April.

Chezacut: 1 ?, 23 September.

Indianpoint Lake: 1 ?, 11 January.

## GLAUCIDIUM GNOMA SWARTHII Grinnell

Hardy Bay: 1 ♀, 25 October.

## GLAUCIDIUM GNOMA CALIFORNICUM Sclater

- Bowron Lake: 1 ♀, Spring.  
 Indianpoint Lake: 5 ♂, 30 September-23 October.  
 100 Mile House: 1 ♂, 1 ♀, 22 April.

## ASIO OTUS WILSONIANUS (Wilson)

- Bowron Lake: 1 ♀, Winter.  
 The head only is preserved of this bird collected sometime during the winter of 1931-32.

## ASIO FLAMMEUS FLAMMEUS (Pontoppidan)

- Chezacut: 1 ♂, 29 November.  
 Cottonwood: 1 ♀, 20 October.  
 Port Hardy: 1 ♀, 25 October.

## AEGOLIUS FUNEREUS RICHARDSONI (Bonaparte)

- Barkerville: 1 ♂, *circa* 1 January.

## AEGOLIUS ACADIA ACADIA (Gmelin)

- Cottonwood: 1 ♀, 14 March.

## CAPRIMULGIDAE

## CHORDEILES MINOR MINOR (Forster)

- Alexis Creek: 2 ♂, 1 ♀, 11 July.  
 Clearwater: 1 ♂, 8 June.  
 Precipice Camp (Hotnarko River): 1 ♀, 5 June.  
 Indianpoint Lake: 1 ♀, *circa* 7 September.  
 Lac la Hache: 1 ♀, 6 July.  
 Lytton: 1 ♀, 21 June.

## APODIDAE

## NEPHOECETES NIGER BOREALIS (Kennerly)

- Chezacut: 1 ♂, 4 September.  
 Clearwater: 2 ♀, 24 May-9 June.  
 Indianpoint Lake: 1 ♀, 26 June.

## CHAETURA VAUXI VAUXI (J. K. Townsend)

- Clearwater: 1 ♂, 3 ♀, 24 May-2 June.  
 Indianpoint Lake: 1 ♀, 24 June.  
 Stuie: 2 ♂, 22 May.

One of the females collected at Indianpoint Lake on June 2, 1935 had a shelled egg in the oviduct.

## TROCHILIDAE

## SELASPHORUS RUFUS (Gmelin)

- Anahim Lake: 1 ♀, 6 May.  
 Bella Coola: 2 ♂, 28 April-7 May.  
 Clearwater: 1 ♂, 2 ♀, 6-23 May.  
 Isaac Lake: 1 ♂, 9 July.  
 Stuie: 1 ♂, 3 ♀, 24-28 May.  
 Swanson Bay: 5 ♂, 3 ♀, 3-13 May.

## STELULA CALLIOPE CALLIOPE (Gould)

- Clearwater: 1 ♂, 16 May.  
 Cottonwood: 1 ♂, 18 May.

## ALCEDINIDAE

## MEGACERYLE ALCYON CAURINA Grinnell

- Anahim Lake: 1 ♂, 16 May.  
 Buffalo Lake: 1 ♂, 26 April.  
 Calvert Island: 4 ♂, 30 April-10 September.  
 Chezacut: 2 ♂, 30 August-14 September.  
 Clearwater: 1 ♀, 1 June.  
 Hurst Island: 1 ♂, 29 August.  
 Indianpoint Lake: 1 ♂, 22 July.  
 Koeve River: 1 ♂, 1 ♀, 12 September.  
 Smith Inlet: 1 ♀, 24 September.  
 St. Johns Harbor (Bardswell Ids.): 2 ♀, 19 September.  
 Table Island: 1 ♀, 21 September.

Munro and Cowan (1947: 137), through omission, indicate a disbelief in the validity of the race proposed by Grinnell (1910). Grinnell based his race on the difference in relative lengths of primaries and secondaries in the eastern and western populations. Measurements in millimeters of 12 British Columbian males and 10 males from Massachusetts, New York, New Hampshire and Minnesota are given in Table 2.

Table 2

	<i>British Columbia</i>	<i>Eastern</i>
Wing length	155-161 (159.5)	149-159 (154.7)
Secondary length	125-137 (130.5)	107-121 (117.3)

## PICIDAE

## COLAPTES AURATUS BOREALIS Ridgway

- Anahim Lake: 1 ♂, 27 April.  
 Clearwater: 1 ♂, 2 ♀, 25 April.  
 Cottonwood: 1 ♂, 23 May.  
 Indianpoint Lake: 4 ♂, 4 ♀, 8 September–11 October.

## COLAPTES AURATUS COLLARIS Vigors

- Anahim Lake: 2 ♂, 4 ♀, 13 April–10 June.  
 Bardswell Ids. (St. Johns Harbor): 1 ♂, 19 September.  
 Barkerville: 1 ♂, 29 May.  
 Calvert Island: 4 ♀, 1–2 September.  
 Chezacut: 4 ♂, 5 ♀, 2–15 September.  
 Clearwater: 8 ♂, 7 ♀, 25 April–20 May.  
 Cottonwood: 1 ♂, 1 ♀, 14–23 May.  
 Indianpoint Lake: 1 ♂, 3 ♀, 12 June–28 September.  
 Lac la Hache: 2 ♂, 2 ♀, 4–7 July.  
 100 Mile House: 2 ♂, 2 ♀, 22–29 April.  
 Stuie: 1 ♂, 28 May.  
 Watson Lake: 1 ♂, 1 May.

A female collected at Anahim Lake on April 17, 1932 is of particular interest. Rectrices 2, 3 and 4 (right side) are typical of *borealis*, the remainder are typical of *collaris*. I judge this to be due to a somatic mutation in the genes controlling pigment production.

I have discussed the treatment of the flickers presented here on page 127 (Also see Table 3, pages 160-161).

## DRYOCOPUS FILEATUS PICINUS (Bangs)

- Chezacut: 1 ♂, 6 September.  
 Clearwater: 4 ♂, 22 April–23 May.  
 Hardy Bay: 1 ♀, February (head only).

## ASYNDESMUS LEWISI (G. R. Gray)

- Clearwater: 1 ♂, 3 May.  
 Fernie: 1 ♂, 8 September.  
 Indianpoint Lake: 1 ♀, 24 October.  
 Kamloops: 1 ♀, 10 May.

## SPHYRAPICUS VARIUS NUCHALIS Baird

- Anahim Lake: 3 ♂, 1 ♀, 16 May–13 June.  
 Chezacut: 1 ♂, 1 ♀, 12 September.  
 Clearwater: 25 ♂, 8 ♀, 24 April–10 June.  
 Cottonwood: 1 ♂, 14 May.  
 Lac la Hache: 2 ♂, 2 ♀, 5–7 July.

Table 3  
MALES

<i>Throat</i>	<i>Moustache</i>	<i>Nape</i>	<i>Flight Feathers</i>	<i>Wing</i>	<i>Tail</i>	<i>Locality</i>
A	A	A	A	164.0	116.0	Indianpoint Lake
A-	A	A	A-	163.5	117.0	" "
C	A	A	A-	161.0	113.0	" "
C	A-	A	A	163.0	110.0	Clearwater
A	A-	A	A-	158.0	111.5	Cottonwood
A-	C-	A	A-	163.0	111.0	Anahim Lake
C-	A-	A-	A	168.0	xxx	Indianpoint Lake
C	C	A-	A-	163.0	112.5	Clearwater
C-	C	A	A-	167.0	xxx	Cottonwood
C	C	C	A-	162.0	115.0	Clearwater
C	C	C	A-	170.0	118.0	"
C	C	C	C	xxx	114.0	Barkerville
C	C	C	C	169.0	119.0	Watson Lake
C	C	C	C	163.0	106.5	Clearwater
C	C	C	C	169.0	110.5	100 Mile House
C	C	C	C-	173.0	113.0	Clearwater
C-	C	C	C	168.5	xxx	Chezacut
C-	C	C-	C	171.0	xxx	"
C-	C	C	C	164.5	111.0	100 Mile House
C-	C	C	C	166.0	xxx	Calvert Island
A-	C	C	C	169.0	111.0	Clearwater
A-	C	C	C	xxx	xxx	Calvert Island
C	C	A	C	xxx	110.0	Lac la Hache
C	C	A	C	167.0	xxx	Clearwater
C	C-	C-	C	164.0	101.0	Calvert Island
C	C	C-	C	165.0	117.5	Anahim Lake
C	C	A-	C-	164.0	113.0	Indianpoint Lake
C	C	A-	C	163.0	111.5	LeRoy Bay
C-	C	C-	C	169.0	116.0	Calvert Island
A	C	C-	A-	167.0	115.0	Anahim Lake
A	C	C-	C	164.0	xxx	Stuie
A-	C	C-	C	162.0	xxx	Chezacut
A-	C	C-	C	168.0	xxx	"
C	C-	C-	C	163.0	xxx	St. Johns Hrbr.
C-	C-	C	C	173.0	115.0	Clearwater
C-	C	C	C	xxx	112.0	Lac la Hache



Table 3 (Continued)

## FEMALES

Throat	Moustache	Nape	Flight Feathers	Wing	Tail	Locality
A	—	A	A			Indianpoint Lake
A	—	A-	A			" "
C	—	A-	A-			Clearwater
A-	—	C	A-			Indianpoint Lake
C	—	C	A-			Anahim Lake
C-	—	C	A-			Clearwater
C-	—	C	A-			Chezacut
A	—	A	C-			Cottonwood
A	—	A	A-			Indianpoint Lake
C	—	C	C			100 Mile House
C	—	C	C			Lac la Hache
C-	—	C	C			Chezacut
C	—	C	C			Clearwater
C-	—	C	C			"
C	—	C	C			Indianpoint Lake
C	—	C	C			" "
C	—	C	C			Clearwater
C	—	C	C			"
C	—	C	C			"
A-	—	C-	C			"
A-	—	C	C			Chezacut
A-	—	C	C			"
A-	—	C	C			Lac la Hache
A-	—	C	C			Anahim Lake
C	—	A-	C			" "
C	—	A-	C			100 Mile House
C-	—	C	C-			Cottonwood
C	—	C-	C			Anahim Lake

Table 3 — The data presented above, with relation to color of the areas of plumage indicated, are symbolized as follows: *A*, typical *auratus*; *C*, typical *cafer*; *A-* and *C-* atypical specimens nearer one of the two forms as indicated. Measurements are given in millimeters.

100 Mile House: 1 ♀, 22 April.

Comments concerning this and the following species are to be found on page 128.

SPHYRAPICUS RUBER RUBER (Gmelin)

Anahim Lake: 2 ♂, 2 ♀, 18 April-14 May.

Bella Coola: 12 ♂, 3 ♀, 24 April-4 July.

Bowron Lake: 2 ♀, 22 June-23 July.

Calvert Island: 2 ♀, 13 September.

Cottonwood: 5 ♂, 2 ♀, 15-24 May.

Hotnarko River: 1 ♂, 1 ♀, 21 May.

Indianpoint Lake: 4 ♂, 30 June-20 September.

LeRoy Bay: 1 ♀, 23 September.

Quesnel, 33 mi. south: 1 ♂, 3 July.

Stuie: 4 ♂, 22-28 May.

Swanson Bay: 1 ♂, 2 ♀, 18 June-23 September.

A male collected at Indianpoint Lake on June 30, 1929 was banded at the same locality on July 14, 1928. When banded the bird was in immature plumage.

DENDROCOPOS VILLOSUS SEPTENTRIONALIS (Nuttall)

Anahim Lake: 3 ♂, 2 ♀, 11 April-15 May.

Atnarko: 1 ♂, 22 May.

Barkerville: 2 ♂, 31 May-6 June.

Bella Coola: 1 ♂, 6 May.

Birch Island: 1 ♀, 12 May.

Chezacut: 5 ♂, 1 ♀, 2 June-4 October.

Clearwater: 6 ♂, 7 ♀, 25 April-3 June.

Cottonwood: 1 ♂, 1 ♀, 15 March-14 May.

Flathead Summit: 1 ♂, 10 September.

Hotnarko River: 1 ♀, 4 June.

Indianpoint Lake: 1 ♂, 2 ♀, 1 May-4 June.

Loon Lake: 1 ♀, 9 April.

Lytton: 1 ♀, 21 June.

100 Mile House: 2 ♂, 21 April-3 May.

Williams Lake: 1 ♀, 31 March.

The specimens listed here are clearly referable to this race. The bird collected at Bella Coola is far out of the normal range of *septentrionalis* but in whiteness of underparts and spotting of wings it conforms with topotypical material. A female from Lytton resembles *monticola* but is closer to *septentrionalis*. Munro and Cowan (1947: 143) indicate that *monticola* is the resident form in central British Columbia. The majority of the McCabe specimens were taken during the summer

months and from them I judge that *septentrionalis* extends farther west and south than their records showed.

DENDROCOPOS VILLOSUS SITKENSIS (Swarth)

Alexis Creek: 1 ♀, 4 April.

Bella Coola: 1 ♀, 24 April.

Calvert Island: 6 ♂, 3 ♀, 30 April-18 September.

Stuie: 1 ♀, 25 May.

Swanson Bay: 3 ♂, 1 ♀, 12 May-29 September.

The specimen from Alexis Creek taken in early April, 1932 is not quite typical of *sitkensis* but it is much closer to this race than any other. Apparently it is a stray individual, or an extreme variant of *septentrionalis*.

DENDROCOPOS VILLOSUS HARRISI (Audubon)

Hope Island: 2 ♂, 28 June.

Hope Island, off the northern tip of Vancouver Island, lies in a position of geographic intermediacy between the ranges of *harrisi* and *sitkensis*. These two specimens, one an immature bird, I believe are closer to the latter though not typical.

DENDROCOPOS PUBESCENS LEUCURUS (Hartlaub)

Anahim Lake: 1 ♂, 3 ♀, 1-15 May.

Beaver Lake: 1 ♂, 20 March.

Chezacut: 1 ♂, 2 October.

Clearwater: 2 ♂, 1 ♀, 17-23 May.

Corbin: 1 ♂, 4 September.

Cottonwood: 1 ♂, 1 ♀, 14-21 May.

Indianpoint Lake: 1 ♀, 15 September.

100 Mile House: 1 ♂, 1 ♀, 24 April.

Townsend Island (Bardswells): 1 ♂, 30 August.

The series shows the belly as slightly more buffy or tawny than birds from California.

PICOIDES ARCTICUS (Swainson)

Alexis Creek: 2 ♂, 4-6 April.

Chezacut: 1 ♀, 8 September.

Clearwater: 1 ♂, 23 April.

Indianpoint Lake: 2 ♂, 3 ♀, 7 April-27 December.

Williams Lake: 1 ♀, 31 March.

PICOIDES TRIDACTYLUS FASCIATUS (Baird)

Beaver Pass (Beaver Lake?): 2 ♂, 16 March.

Cottonwood: 3 ♂, 2 ♀, 11 March-13 November.

Flathead Summit: 1 ♀, 10 September.

Indianpoint Lake: 6 ♂, 4 ♀, 1 ?, 30 March–18 December.

Kleena Kleen: 1 ♀, 17 July.

Three specimens collected at Indianpoint Lake on June 14 and 28, 1928 and 1930 are juvenal birds about one-half grown.

## TYRANNIDAE

### TYRANNUS TYRANNUS (Linné)

Clearwater: 1 ♂, 2 ♀, 26–29 May.

Indianpoint Lake: 1 ♂, 1 ♀, 1–19 June.

Lillooet: 2 ♂, 2 ♀, 23 June.

127 Mile House: 1 ♂, 1 ♀, 4 July.

### TYRANNUS VERTICALIS Say

Clearwater: 2 ♂, 1 ♀, 3–17 May.

Khutze Inlet: 1 ♂, 24 May.

Lillooet: 2 ♂, 2 ♀, 21–23 June.

Lytton: 1 ♀, 21 June.

### SAYORNIS SAYA SAYA Grinnell

Anahim Lake: 1 ♀, 18 April.

Chezacut: 1 ♂, 28 August.

Indianpoint Lake: 1 ♂, 1 ♀, 1 ?, 20 May–18 August.

Material available in the Museum of Comparative Zoology collections is insufficient for me to examine the validity of *S. s. yukonensis* Bishop. I am certain, however, that the McCabe specimens are not separable from the nominate form.

### EMPIDONAX FLAVIVENTRIS (Baird)

Indianpoint Lake: 6 ♂, 1 ♀, 21 June–2 August.

The female, July 5, 1930, was collected with nest and 4 eggs.

### EMPIDONAX TRAILLI TRAILLI (Audubon)

Crowsnest Pass: 1 ♂, 5 September.

Indianpoint Lake: 4 ♂, 1 ♀, 14–24 June.

Isaac Lake: 1 ♀, 22 June.

Khutze Inlet: 2 ♂, 13 June.

Lac la Hache: 1 ♂, 2 ♀, 5–7 July.

127 Mile House: 1 ♀, 4 July.

150 Mile House: 1 ♂, 22 July.

Comparison with specimens from the eastern United States shows no constant difference in size or color. Phillips (1948: 510) defends the validity of *E. t. adastus* Oberholser and indicates that it extends into

southern British Columbia. Miller (1941b: 259) concludes that this race is not recognizable. Apparently both *adustus* and *E. t. brewsteri* Oberholser are recognizable, if at all, only in series. Faced with the problem of identification of individuals, or at best a very small series, I see no other choice than to refer them to this subspecies.

#### EMPIDONAX HAMMONDII (Xantus)

Anahim Lake: 1 ♂, 14 May.  
 Atnarko: 3 ♂, 21-22 May.  
 Bella Coola: 10 ♂, 24 April-28 June.  
 Blackpool: 1 ♂, 2 May.  
 Bowron Lake: 1 ♀, 21 July.  
 Chezacut: 2 ♂, 1-2 September.  
 Clearwater: 11 ♂, 2 ♀, 7 May-1 June.  
 Cottonwood: 7 ♂, 4 ♀, 15-24 May.  
 Indianpoint Lake: 8 ♂, 1 ♀, 6 May-25 August.  
 100 Mile House: 1 ♂, 4 May.  
 Quesnel: 1 ♂, 24 July.  
 Raft River, near mouth: 1 ♂, 21 May.  
 Stuie: 3 ♂, 24 May-30 June.

#### EMPIDONAX WRIGHTII Baird

Alexis Creek: 1 ♂, 12 June.  
 Barkerville: 2 ♂, 29 May.  
 Bella Coola: 2 ♀, 29 April-22 July.  
 Clearwater: 8 ♂, 2 ♀, 4 May-5 September.  
 Cottonwood: 3 ♂, 15-25 May.  
 Hotnarko River: 1 ♀, 4 June.  
 Indianpoint Lake: 3 ♀, 21 May-7 July.  
 Kleena Kleen: 1 ♂, 17 July.  
 100 Mile House: 3 ♂, 28 April-3 May.  
 150 Mile House: 1 ♀, 22 July.  
 Raft River, near mouth: 1 ♀, 21 May.  
 Redstone: 1 ♂, 10 July.  
 Stuie: 1 ♀, 25 May.

Nesting data are furnished by a female collected at Clearwater on May 22, 1935 while building a nest; a female from Indianpoint Lake, July 7, 1930 with nest and eggs; a female from the Hotnarko River, June 4, 1932 with a hard shelled egg in the oviduct.

#### EMPIDONAX DIFFICILIS DIFFICILIS Baird

Bella Coola: 1 ♂, 8 June.  
 Borrowmans Bay: 3 ♂, 3-4 June.

Bowron Lake: 1 ♀, Spring, 1933.

Calvert Island: 6 ♂, 2 ♀, 22 May-15 September.

Riske Creek: 1 ♀, 21 July.

Swanson Bay: 3 ♂, 12-17 May.

The specimen from Bowron Lake was found as a mummy, apparently killed by winter conditions.

#### CONTOPUS RICHARDSONI RICHARDSONI (Swainson)

Anahim Lake: 4 ♂, 1 ♀, 15 May-5 June.

Beaver Lake: 2 ♂, 3-6 June.

Bella Coola: 4 ♂, 3-8 June.

Bowron Lake: 1 ♂, 12 June.

Chezacut: 1 ♂, 1 ♀, 2 September.

Clearwater: 7 ♂, 1 ♀, 1 ♀, 17-23 May.

Indianpoint Lake: 5 ♂, 2 ♀, 6 June-6 July.

Stuie: 2 ♂, 2 ♀, 24 May-6 June.

#### NUTTALLORNIS BOREALIS (Swainson)

Anahim Lake: 1 ♂, 13 May.

Beaver Lake: 2 ♂, 30 May-20 June.

Bella Coola: 6 ♂, 4 ♀, 2-8 June.

Bowron Lake: 1 ♂, 1 ♀, 12-30 June.

Calvert Island: 1 ♂, 22 May.

Cottonwood: 1 ♂, 1 ♀, 24-25 May.

Hotnarko River: 1 ♂, 4 June.

Indianpoint Lake: 4 ♂, 1 ♀, 6-22 June.

Swanson Bay: 1 ♀, 16 May.

#### ALAUDIDAE

##### EREMOPHILA ALPESTRIS ARCTICOLA Oberholser

Hanceville: 3 ♂, 31 March.

Indianpoint Lake: 3 ♂, 1 ♀, 10 July-16 September.

100 Mile House: 1 ♂, 2 ♀, 30 April-2 May.

Rainbow Mountains: 9 ♂, 5 ♀, 20 June.

Comments concerning the Horned Larks in the McCabe Collection are made in connection with the succeeding subspecies.

##### EREMOPHILA ALPESTRIS MERRILLI Dwight

Riske Creek: 9 ♂, 2 ♀, 25 June.

These specimens have been previously reported on by Behle (1942). My allocation of specimens is the same as his, following critical re-examination.

## HIRUNDINIDAE

## TACHYCNETA THALISSIMA LEPIDA Mearns

Alexis Creek: 1 ♂, 1 ♀, 1 ?, 10 July.

Clearwater: 1 ♂, 5 ♀, 7-24 May.

Khutze Inlet: 2 ♂, 13 June.

## IRIDOPROCNE BICOLOR (Vieillot)

Anahim Lake: 2 ♀, 1-14 May.

Beaver Lake: 1 ♂, 30 May.

Barkerville: 1 ♂, 6 June.

Calvert Island: 1 ♀, 30 May.

Clearwater: 2 ♂, 2 ♀, 28 April-3 June.

Indianpoint Lake: 1 ♂, 2 ♀, 13-18 July.

Two females collected at Indianpoint Lake, July 13, 1930 are juvenal birds about one-half grown.

## RIPARIA RIPARIA RIPARIA (Linné)

Cottonwood: 1 ?, 9 August.

## STELGIDOPTERYX RUFICOLLIS SERRIPENNIS (Audubon)

Alexis Creek: 2 ♀, 10-13 July.

Clearwater: 6 ♂, 2 ♀, 21 April-16 May.

Cottonwood: 1 ♂, 1 ♀, 15 May.

Indianpoint Lake: 1 ♂, 11 June.

127 Mile House: 1 ♂, 4 July.

Watson Lake: 1 ♂, 1 ♀, 1 May.

## HIRUNDO RUSTICA ERYTHROGASTER Boddaert

Khutze Inlet: 2 ♂, 2 ♀, 24 May-12 June.

## PTEROHELIDON PYRRHONOTA PYRRHONOTA (Vieillot)

Alexis Creek: 1 ♂, 10 July.

Indianpoint Lake: 2 ♂, 5 July.

127 Mile House: 1 ♂, 4 July.

## CORVIDAE

## PERISOREUS CANADENSIS CANADENSIS (Linné)

Alexis Creek: 2 ♂, 1 ♀, 2-4 April.

Anahim Lake: 3 ♂, 2 ♀, 27 April-8 May.

Barkerville: 1 ♂, 1 ♀, 29 May-6 September.

Chezacut: 4 ♂, 3 ♀, 28 September-4 October.

Cottonwood: 3 ♂, 1 ♀, 16 May-9 November.

Hotnarko River: 1 ♂, 1 ♀, 5 June.

Indianpoint Lake: 7 ♂, 3 ♀, 10 June–15 December.

Kleena Kleen: 1 ♀, 17 July.

All but one of these birds are clearly referable to this race. The specimen collected at Kleena Kleen in 1931 is towards *P. c. griseus*. The following birds should perhaps be referred to this form but they are atypical — towards *bicolor*.

Anahim Lake: 1 ♀, 27 April.

Chezacut: 2 ♂, 2 ♀, 5 September–4 October.

Clearwater: 3 ♀, 5–9 June.

Indianpoint Lake: 1 ♀, 30 March.

#### PERISOREUS CANADENSIS BICOLOR Miller

Clearwater: 3 ♂, 3 ♀, 4–9 June.

Flathead Summit: 2 ♂, 10 September.

Natal, 17 miles north: 1 ♂, 8 September.

Specimens listed here I take to be typical of this race. As Miller indicated (1933: fig. 2.), the area in which McCabe did most of his work lies in the zone of intergradation of *canadensis* and *bicolor*. The McCabe skins seem to bear this out nicely.

#### PERISOREUS CANADENSIS ARCUS Miller

Rainbow Mountains: 1 ♀, 20 June.

Miller (1945) describes this race as having a very limited range, "Thus far known only from the Rainbow Mountains area . . ." The McCabe specimen is in juvenal plumage and to Miller's information I can only add that in this plumage *arcus* does not differ from *canadensis* or *griseus*. I have not seen any specimens of *arcus* in adult plumage and this bird is assigned here on the basis of locality.

#### PERISOREUS CANADENSIS GRISEUS Ridgway

Allison Harbor: 1 ♀, 17 October.

Bella Coola, mountains northeast: 1 ♀, 1 ♀, 23 June.

Calvert Island: 6 ♂, 4 ♀, 2–18 September.

LeRoy Bay: 1 ♂, 2 ♀, 24 September.

Little Rainbow Mountains: 1 ♂, 2 ♀, 22 June.

Two specimens from the mountains northeast of Bella Coola, and two from Calvert Island are in juvenal plumage. Mr. McCabe's collections of birds which are surely referable to *griseus*, in localities adjacent to the type locality of *arcus*, certainly indicate a very restricted range for the latter form. His label notation of "Bella Coola, mountains northeast" on the two juvenal plumaged birds poses a bit of a problem. As I have commented above, a single topotype is not



distinguishable from the other races in this plumage. In that the Rainbow Mountains lie northeast of Bella Coola these birds may possibly be *arcus*. Adults from the Little Rainbow Mountains, however, are quite representative of *griseus* and I feel that it is best to refer these juvenal birds of questionable geographical origin to this race.

CYANOCITTA STELLERI (Gmelin)

Frank A. Pitelka of the Museum of Vertebrate Zoology at the University of California borrowed 33 specimens of this species from the McCabe collection prior to the beginning of my study. He has not made sufficient progress in his survey to allow him to furnish me with identifications of these specimens. I am hopeful that he will report on them at a later date.

PICA PICA HUDSONIA (Sabine)

Chezacut: 1 ♀, 2 October.  
Clinton (Hat Creek): 1 ♂, 9 May.

CORVUS CORAX PRINCIPALIS Ridgway

Anahim Lake: 1 ♂, 24 April.  
Bardswell Ids. (St. Johns Harbor): 1 ♀, 19 September.  
Calvert Island: 2 ♂, 5 ♀, 27 May-4 September.  
Smyth Island: 2 ♀, 22-24 September.  
Swanson Bay: 1 ♂, 24 June.

CORVUS BRACHYRHYNCHOS HESPERIS Ridgway

Anahim Lake: 4 ♂, 5 ♀, 16 April-12 May.  
Chezacut: 1 ♂, 2 ♀, 5-25 September.  
Clearwater: 1 ♂, 30 April.  
Indianpoint Lake: 2 ♀, 1-31 May.  
100 Mile House: 7 ♂, 4 ♀, 23 April-3 May.  
Quesnel, 32 miles south: 1 ♀, 3 July.

CORVUS CAURINUS Baird

Bella Coola: 8 ♂, 4 ♀, 29 April-8 June.  
Calvert Island: 2 ♂, 1 ♀, 21 May-8 September.  
Goose Island: 1 ♂, 1 ♀, 30 May.  
Hurst Island: 1 ♂, 1 ♀, 27-28 August.  
Khutze Inlet: 4 ♂, 4 ♀, 13 June.

Breeding at Khutze Inlet in 1936 is shown by seven young birds, four about one-third grown and three newly hatched downy young.

## NUCIFRAGA COLUMBIANA (Wilson)

Kleena Kleen: 1 ♀, 17 July.

Lillooet to Lytton: 1 ♂, 2 ♀, 21 June.

Rainbow Mountains: 2 ♂, 1 ♀, 17 June.

## PARIDAE

## PARUS ATRICAPILLUS FORTUITUS (Dawson and Bowles)

Alexis Creek: 4 ♂, 3 April-12 July.

Anahim Lake: 2 ♂, 1 ♀, 21 April-14 May.

Chezacut: 1 ♂, 2 ♀, 1 ?, 2 September-4 October.

Clearwater: 7 ♂, 2 ♀, 20 April-3 June.

Cottonwood: 1 ♀, 10 March.

100 Mile House: 2 ♂, 1 ♀, 22-30 April.

My measurements of the tail length of the 17 males are as follows: 59.0 mm. — 67.0 mm. (average 64.4 mm.). The vagaries of measurements made by different individuals may well account for the disparity of these birds from Duvall's measurements of *fortuitus* (1945a: 62). He comments that (*op. cit.*: 66) birds [from the northern half of British Columbia] "may represent an undescribed race." Certainly the birds from the area here reported on are not worthy of taxonomic recognition.

## PARUS GAMBELLI GRINNELLI (van Rossem)

Anahim Lake: 4 ♂, 3 ♀, 28 April-10 June.

Birch Island: 1 ♂, 1 ♀, 8 May.

Chezacut: 7 ♂, 4 ♀, 2 September-2 October.

Clearwater: 1 ♂, 30 April.

Hotnarko River: 1 ♂, 4 June.

Indianpoint Lake: 1 ♀, 5 May.

Lytton: 1 ♂, 21 June.

100 Mile House: 1 ♀, 4 May.

Quesnel: 1 ♀, 3 July.

Redstone: 1 ♂, 10 July.

Watson Lake: 1 ♀, 1 May.

## PARUS HUDSONICUS COLUMBIANUS Rhoads

Anahim Lake: 1 ♂, 29 April.

Indianpoint Lake: 2 ♂, 3 ♀, 30 March-19 December.

## PARUS RUFESCENS RUFESCENS Townsend

Aristazabel Island: 4 ♂, 3-5 June.

Bella Coola: 6 ♂, 2 ♀, 24 April-9 June.

Calvert Island: 4 ♂, 7 ♀, 27 April-18 September.

Indianpoint Lake: 1 ♂, 21 April.

- Koeye River: 1 ♂, 1 ♀, 12 September.  
 Princess Royal Island: 1 ♂, 1 ♀, 19 May.  
 Smith Inlet (LeRoy Bay): 1 ♂, 24 September.  
 Smyth Island: 1 ♀, 23 September.  
 Swanson Bay: 2 ♂, 1 ♀, 13 May-29 September.

## SITTIDAE

## SITTA CAROLINENSIS TENUISSIMA Grinnell

Lytton: 1 ♀, 21 June.

Measurements as follows conform to Aldrich's (1944: 595) findings for the limits of variation in *tenuissima*: wing, 88.0 mm.; culmen 19.0 mm.

## SITTA CANADENSIS Linné

- Alexis Creek: 1 ♂, 1 ♀, 4 April.  
 Anahim Lake: 1 ♂, 3 ♀, 11-16 May.  
 Bowron Lake: 1 ♂, 3 June.  
 Chezacut: 3 ♂, 2 ♀, 2-16 September.  
 Clearwater: 9 ♂, 3 ♀, 7 May-6 June.  
 Cottonwood: 1 ♂, 26 July.  
 Flathead Summit: 1 ♀, 10 September.  
 Indianpoint Lake: 3 ♂, 2 ♀, 29 April-10 July.  
 Khutze Inlet: 2 ♂, 1 ♀, 24 May-1 October.  
 Natal, 13 miles north: 1 ♂, 8 September.  
 Princess Royal Island: 4 ♂, 19 May-28 September.  
 Smyth Island: 1 ♀, 22 September.  
 Stuaie: 1 ♂, 24 May.  
 Williams Lake: 1 ♂, 1 ♀, 31 March.

## SITTA PYGMAEA MELANOTIS van Rossem

Lytton: 2 ♂, 21 June.

## CERTHIIDAE

## CERTHIA FAMILIARIS MONTANA Ridgway

Indianpoint Lake: 1 ♀, 4 ♀, 2 August-18 December.

Aldrich (1946b: 129) has described a form, *caurina*, which I judge should be found in the Indianpoint Lake vicinity. I can see no difference in the color of the McCabe skins when compared with birds from Idaho, Arizona and New Mexico. I find it difficult to visualize a third form, intermediate between *montana* and *occidentalis*, as occurring in British Columbia. Aldrich did not see any British Columbian material

and included this region in the range of the proposed form on the basis of specimens from Alaska and the Washington-Oregon area.

*CERTHIA FAMILIARIS OCCIDENTALIS* Ridgway

- Aristazabel Island: 1 ♂, 1 June.  
 Calvert Island: 2 ♂, 1 ♀, 16 May-11 September.  
 Campania Island: 1 ♂, 30 September.  
 Khutze Inlet: 1 ♀, 1 October.  
 LeRoy Bay: 1 ♀, 24 September.  
 Stuie: 1 ♂, 28 May.  
 Swanson Bay: 2 ♂, 1 ♀, 1 ?, 18 June-26 September.

CINCLIDAE

*CINCLUS MEXICANUS UNICOLOR* Bonaparte

- Allison Harbor: 1 ♀, 21 October.  
 Clearwater: 2 ♂, 1 ♀, 22 April-10 May.  
 Indianpoint Lake: 3 ♂, 19 December.  
 Phillips Arm: 1 ♂, 1 ♀, 5 November.  
 Swanson Bay: 4 ♂, 1 ♀, 9 May-2 October.

TROGLODYTIDAE

*TROGLODYTES AËDON PARKMANNII* Audubon

- Clearwater: 1 ♂, 17 May.

*TROGLODYTES TROGLODYTES PACIFICUS* Baird

- Aristazabel Island: 4 ♂, 1 ♀, 4-5 June.  
 Bella Coola: 5 ♂, 3 ♀, 1 ?, 23 April-27 June.  
 Calvert Island: 12 ♂, 7 ♀, 1 ?, 23 April-18 September.  
 Indianpoint Lake: 5 ♂, 5 ♀, 1 ?, 19 May-6 September.  
 Koeye River: 2 ♂, 12 September.  
 Khutze Inlet: 2 ♂, 1 ♀, 13 June-12 September.  
 Smyth Island: 1 ♂, 22 September.  
 Storm Island: 1 ♀, 25 September.  
 Swanson Bay: 4 ♂, 4 ♀, 1 ?, 11 May-6 October.  
 Table Island: 1 ♂, 1 ♀, 20 September.

*THRYOMANES BEWICKII CALOPHONUS* Oberholser

- Sea Island: 1 ♀, 22 September.

*TELMATODYTES PALUSTRIS PLESIIUS* Oberholser

- Alexis Creek: 2 ♂, 1 ♀, 12 July.  
 Chezaeut: 6 ♂, 4 ♀, 1 ?, 31 August-6 October.  
 100 Mile House: 7 ♂, 28-29 April.

## TELMATODYTES PALUSTRIS PALUDICOLA (Baird)

Ione Island: 5 ♂, 2 ♀, 17 April.

Kleena Kleen: 1 ♂, 17 July.

## SALPINCTES OBSOLETUS OBSOLETUS (Say)

Indianpoint Lake: 1 ♀, 25 May.

100 Mile House (Mount Bagbie): 1 ♂, 14 May.

## TURDIDAE

## TURDUS MIGRATORIUS PROPINQUUS Ridgway

Alexis Creek: 6 ♂, 3-4 April.

Anahim Lake: 5 ♂, 3 ♀, 17 April-10 June.

Aristazabel Island: 1 ♀, 31 May.

Barkerville: 1 ♀, 3 July.

Bella Coola: 7 ♂, 8 ♀, 22 April-5 June.

Calvert Island: 2 ♂, 4 ♀, 16-29 May.

Chezacut: 7 ♂, 1 ♀, 6-25 September.

Clearwater: 13 ♂, 15 ♀, 19 April-22 May.

Cottonwood: 6 ♂, 1 ♀, 20-28 May.

Hurst Island: 1 ♀, 15 June.

Indianpoint Lake: 4 ♂, 3 ♀, 1 ♀, 3 May-29 June.

Khutze Inlet: 2 ♂, 1 ♀, 13 June-5 October.

Lac la Hache: 6 ♀, 6 July-4 October.

100 Mile House: 5 ♂, 1 ♀, 21 April-2 May.

150 Mile House: 1 ♀, 22 July.

Redstone: 1 ♀, 16 July.

Riske Creek: 4 ♂, 2 ♀, 21 July.

Smyth Island: 3 ♂, 22 September.

Stuie: 2 ♂, 24-27 May.

Swanson Bay: 1 ♂, 1 ♀, 22 May-17 June.

Watson Lake: 1 ♂, 1 May.

As a series, these specimens seem to represent atypical *propinquus*. Wing measurements of the fourteen males from coastal localities are from 130.0 mm. to 137.0 mm. Fifty males from inland localities range from 129.0 mm. to 142.0 mm. In series the coastal birds may average *slightly* darker than the inland birds. The amount of white-tipping on the rectrices shows some slight influence of *T. m. migratorius* which occurs to the northward. On the basis of these specimens I feel that the southern limits of *caurinus* on the mainland of British Columbia must lie north of Swanson Bay.

## IXOREUS NAEVIUS NAEVIUS (Gmelin)

- Aristazabel Island: 1 ♂, 31 May.  
 Anahim Lake: 5 ♂, 6 ♀, 13 April-24 May.  
 Barkerville: 1 ?, 6 September.  
 Bella Coola: 15 ♂, 5 ♀, 24 April-30 May.  
 Birch Island: 2 ♀, 8-18 May.  
 Calvert Island: 9 ♂, 10 ♀, 14 May-18 September.  
 Chezacut: 5 ♂, 3 ♀, 6 May-4 October.  
 Clearwater: 9 ♂, 2 ♀, 19 April-24 September.  
 Indianpoint Lake: 6 ♂, 3 ♀, 7 May-24 October.  
 Khutze Inlet: 3 ♂, 1 ♀, 13 June-6 October.  
 LeRoy Bay: 1 ♀, 24 September.  
 Smyth Island: 2 ♀, 22 September.  
 Stui: 2 ♀, 25 May.  
 Swanson Bay: 2 ♂, 3 ♀, 1 ?, 12 May-28 September.

Wing length in ten males from Indianpoint Lake, Anahim Lake, Clearwater and Chezacut ranges from 124.0 mm. to 130.0 mm. Ten males from Bella Coola and Calvert Island have wing lengths between 123.0 - 129.0 mm. Fourteen females from the inland localities vary from 121.0 mm. to 129.0 mm. Fifteen females from the coast are between 122.0 mm. and 129.0 mm.

There are no uniform color differences in the birds from inland localities when they are compared with birds from the coast. Specimens from Sitka, Alaska are likewise indistinguishable from these birds. Birds from Anahim Lake show a slightly grayer back than the remainder of the series but it is certainly not sufficient to be of diagnostic value. I have not been able to examine any material from MacKenzie and thus am not in a position to comment on the validity of *I. n. meruloides*. I do not feel, however, that there are two recognizable forms represented in the collections from British Columbia.

## HYLOCICHLA GUTTATA GUTTATA (Pallas)

- Anahim Lake: 1 ♂, 1 ♀, 11-15 May.  
 Barkerville: 3 ♂, 2 ♀, 30 May-6 September.  
 Chezacut: 1 ♂, 1 ♀, 9-23 September.  
 Cottonwood: 1 ?, 25 May.  
 Indianpoint Lake: 4 ♂, 3 ♀, 21 May-10 October.

Oberholser (1932: 8) has suggested that the birds of "central southern British Columbia . . ." be recognized as differing from *guttata* in being paler and more grayish or greenish (less brownish or rufescent). He proposes the name *oromela* for this population. I can not be sure

that the McCabe specimens come from within the range of this proposed subspecies but I am sure that I am unable to detect constant color differences when they are compared with specimens I take to be typical of *guttata*. Miller (1941b: 262) and McCabe and McCabe (1932, 1933) have commented earlier on the validity of *oromela*. Munro and Cowan (1947: 176-177) assign birds from this same area to *guttata* while recognizing *oromela* as occurring farther to the south in British Columbia. They base their conclusions partially on the fact that the two forms occupy distinct habitats within the province. I am unable to comment critically on this point.

Wing measurements of 9 males are 88.0 mm. — 96.0 mm. (av. 90.2); of 5 females, 84.0 mm. — 89.0 mm. (av. 87.4).

#### HYLOCICHLA GUTTATA NANUS (Audubon)

Aristazabel Island: 1 ♀, 31 May.

Bella Coola: 12 ♂, 23 April-5 May.

Calvert Island: 13 ♂, 5 ♀, 2 ?, 21 April-13 September.

Kliwixi: 1 ♂, 1 November.

LeRoy Bay: 2 ♂, 1 ♀, 23-24 September.

Princess Royal Island: 1 ♂, 2 ♀, 19 May-21 June.

Smyth Island: 1 ♂, 22 September.

Swanson Bay: 10 ♂, 7 ♀, 6 May-25 June.

West Estevan Island: 1 ♂, 4 October.

#### HYLOCICHLA USTULATA USTULATA (Nuttall)

Alta Lake: 1 ♂, 24 August.

Balaklava Island: 1 ♀, 12 June.

Bella Coola: 9 ♂, 5-28 June.

Calvert Island: 4 ♂, 1 ♀, 1 ?, 17 May-11 September.

Hurst Island: 1 ?, 18 June.

Khutze Inlet: 3 ♂, 12-13 June.

Princess Royal Island: 1 ♂, 21 June.

Stuie: 2 ♀, 30 June.

Swanson Bay: 5 ♂, 1 ♀, 27 May-11 June.

The birds from Bella Coola and Stuie are not typical of this form. They are not as brown — showing intergradation with *swainsoni*.

#### HYLOCICHLA USTULATA SWAINSONI (Tschudi)

Alexis Creek: 2 ♂, 10-12 July.

Anahim Lake: 2 ♂, 2 ♀, 5-9 June.

Barkerville: 1 ♂, 1 ♀, 6 September.

Bella Coola: 1 ♀, 9 June.

Cottonwood: 1 ♀, 24 July.

- Clearwater: 6 ♂, 1 ♀, 27 May-10 June.  
 Crowsnest Pass: 1 ♂, 6 September.  
 Hotnarko River: 2 ♂, 1 ♀, 4 June.  
 Indianpoint Lake: 14 ♂, 8 ♀, 26 May-6 September.  
 Kleena Kleen: 1 ♀, 17 July.  
 150 Mile House: 1 ♂, 22 July.  
 Rainbow Mountains: 1 ♀, 18 June.

These birds have been compared with Alberta and Saskatchewan skins and I agree with Godfrey (1951) that there is no apparent difference. They are slightly grayer than birds from the northeastern United States (New York and Maine). Under these circumstances I am following Godfrey and placing *H. u. almae* Oberholser in synonymy with *swainsoni*.

In the absence of comparative material I am not venturing an opinion on the race proposed by Godfrey (*loc. cit.*) as inhabiting northwestern North America. This form, which he has designated as *H. u. incana*, presumably may be expected to occur as far south as the areas in which McCabe made his collections.

Specimens listed here from Bella Coola and the Rainbow Mountains show the influence of *ustulata* and are not typical of *swainsoni*.

#### HYLOCICHLA MINIMA MINIMA (Lafresnaye)

- Rainbow Mountains: 2 ♂, 1 ♀, 18-19 June.

#### HYLOCICHLA FUSCESCENS SALICOLA Ridgway

- Clearwater: 1 ♂, 1 ♀, 6 June.  
 150 Mile House: 1 ♀, 22 July.  
 Stuie: 1 ♀, 30 June.

#### SIALIA MEXICANA OCCIDENTALIS Townsend

- Clearwater: 4 ♂, 1 ♀, 22 April-17 May.  
 Lytton, 25 miles west: 1 ♀, 21 June.  
 Riske Creek (Beechers): 2 ♂, 21 July.

#### SIALIA CURRUCOIDES (Bechstein)

- Alexis Creek: 1 ♂, 2 ♀, 2 April.  
 Anahim Lake: 2 ♂, 1 ♀, 23 April-6 May.  
 Chezaeut: 1 ♂, 24 September.  
 Clearwater: 7 ♂, 4 ♀, 23 April-10 May.  
 Cottonwood: 1 ♂, 23 May.  
 Crowsnest Pass: 1 ♂, 1 ♀, 6 September.  
 Indianpoint Lake: 1 ♀, 30 July.  
 Lytton, 25 miles north: 1 ♂, 21 June.



- Marguerite: 1 ♀, 8 September.  
 150 Mile House: 1 ♂, 22 July.  
 Quesnel, 17 miles south: 1 ♀, 3 July.  
 Riske Creek (Beechers): 1 ♀, 21 July.  
 Soda Creek: 1 ♂, 8 September.  
 Tatla Lake: 1 ♂, 16 July.

MYADESTES TOWNSENDI TOWNSENDI (Audubon)

- Alexis Creek: 1 ♂, 1 ♀, 10 July.  
 Anahim Lake: 1 ♂, 5 June.  
 Barkerville: 2 ♂, 29 May.  
 B. L. [Bowron Lake ?]: 1 ♀, 10 July.  
 Calvert Island: 1 ♀, 8 May.  
 Clearwater: 10 ♂, 6 ♀, 21 April–10 June.  
 Indianpoint Lake: 2 ♂, 1 ♀, 23 May–26 June.  
 Hardy Bay: 1 ♀, 12 April.  
 Kleena Kleen: 1 ♂, 1 ♀, 17 July.

SYLVIIDAE

REGULUS SATRAPA OLIVACEOUS Baird

- Anahim Lake: 1 ♂, 27 April.  
 Aristazabel Island: 5 ♂, 2 ♀, 31 May–5 June.  
 Bella Coola: 2 ♂, 1 ♀, 6–30 May.  
 Calvert Island: 2 ♂, 4 ♀, 17 May–13 September.  
 Clearwater: 9 ♂, 1 ♀, 24 April–9 June.  
 Indianpoint Lake: 9 ♂, 2 ♀, 19 May–8 October.  
 Koeve River: 1 ♀, 12 September.  
 LeRoy Bay: 2 ♂, 23–24 September.  
 Port Hardy: 1 ♂, 1 ♀, 26 October.  
 Princess Royal Island: 1 ♂, 21 June.  
 Quesnel: 1 ♂, 1 ♀, 24 July.  
 Smyth Island: 1 ♂, 11 October.  
 Swanson Bay: 5 ♂, 5 ♀, 17 May–4 October.  
 Swindle Island: 1 ♂, 1 ♀, 8 October.  
 Table Island: 1 ♂, 21 September.

A. J. van Rossem (1945: 77) suggested that the kinglets of the Sierra Nevada of California be recognized as differing from the birds of the Northwest sufficiently to be designated *R. s. amoenus*. He stated that the southern birds differed from *olivaceous* in being larger and lighter and brighter. The Committee on Classification and Nomenclature of the American Ornithologists' Union (1948: 442) accepted this form and stated that the range included interior British Columbia.

Miller (1951: 620) comments as to the status of *amoenus* in California and rejects this subspecies.

The McCabe collections include 24 birds from inland localities and 35 from the coast. I can see no constant color differences in these two samples. Twenty males from the coast range from 52.0 mm. to 57.0 mm. (av. 54.8) in tail length. Nineteen males from inland range from 52.0 mm. to 56.0 mm. (av. 54.8). I can see no basis for the recognition of two forms in British Columbia.

#### REGULUS CALENDULA CINERACEUS Grinnell

Anahim Lake: 5 ♂, 3 ♀, 27 April-16 May.

Bella Coola: 1 ♂, 3 ♀, 27 April-4 May.

Birch Island: 2 ♂, 30 April.

Bowron Lake: 1 ♀, 6 September.

Chezacut: 8 ♂, 5 ♀, 1 ?, 30 August-25 September.

Clearwater: 12 ♂, 2 ♀, 22 April-10 June.

Indianpoint Lake: 6 ♂, 2 ♀, 21 May-26 July.

Natal: 1 ♀, 8 September.

100 Mile House: 1 ♂, 22 April.

Munro and Cowan (1947: 182) assign the inland population to *R. c. calendula*. I find this series to be typical of *cineraceus*. A single specimen from Clearwater approaches *R. c. calendula* in the color of its back. Four birds from Bella Coola are referable to *cineraceus* although three specimens taken at Anahim Lake seem to show the influence of *R. c. grinnelli*.

#### REGULUS CALENDULA GRINNELLI Palmer

St. Johns Harbor (Bardswells): 1 ♀, 22 September.

Bella Coola: 3 ♂, 24-30 April.

Calvert Island: 2 ♂, 1 ♀, 27 April-18 September.

Khutze Inlet: 1 ♂, 1 October.

Swanson Bay: 1 ♀, 18 June.

These specimens are clearly referable to *grinnelli*. As indicated above, intergradation with *cineraceus* in the coastal area is clearly shown by this excellent series totaling 63 birds.

#### MOTACILLIDAE

##### ANTHUS SPINOLETTA PACIFICUS Todd

Anahim Lake: 5 ♂, 27 April-8 May.

Bella Coola: 5 ♂, 2 ♀, 9 May-25 June.

Calvert Island: 1 ♂, 17 April.

Chezacut: 4 ♂, 2-24 September.

- Clearwater: 1 ♂, 29 April.  
 Indianpoint Lake: 5 ♂, 5 ♀, 4 May-23 September.  
 Port Hardy: 1 ♀, 28 October.  
 Rainbow Mountains: 1 ♂, 20 June.  
 Swanson Bay: 1 ♀, 6 May.

## BOMBYCILLIDAE

## BOMBYCILLA GARRULA PALLIDICEPS Reichenow

- Beaver Lake: 9 ♂, 4 ♀, 13 July-3 August.  
 Bowron Lake: 1 ♂, 29 June.  
 Indianpoint Lake: 4 ♂, 27 July-21 November.  
 Kleena Kleen: 1 ♂, 17 July.  
 Port Hardy: 1 ♂, 29 October.

Two half-grown males collected at Indianpoint Lake on August 9, 1934 provide a nesting record.

## BOMBYCILLA CEDRORUM Vieillot

- Bella Coola: 1 ♂, 25 June.  
 Clearwater: 1 ♂, 1 ♀, 7 June.  
 Indianpoint Lake: 1 ♂, 2 ♀, 13-22 June.  
 Isaac Lake: 1 ♀, 22 June.  
 Lac la Hache: 1 ♀, 7 July.  
 Swanson Bay: 1 ♀, 20 June.

## LANIIDAE

## LANIUS EXCUBITOR INVICTUS Grinnell

- Alexis Creek: 1 ♀, 5 April.  
 Indianpoint Lake: 1 ♂, 2 ♀, 20 April-29 September.

## VIREONIDAE

## VIREO SOLITARIUS CASSINII Xantus

- Chezacut: 1 ♀, 5 September.  
 Clearwater: 7 ♂, 8-19 May.  
 Cottonwood: 2 ♂, 14-18 May.  
 Hotnarko River (Atnarko): 1 ♂, 21 May.  
 Indianpoint Lake: 1 ♂, 12 June.  
 Quesnel: 1 ♂, 3 July.

## VIREO OLIVACEUS (Linné)

- Clearwater: 2 ♂, 3-11 June.  
 Indianpoint Lake: 1 ♂, 21 June.  
 150 Mile House: 1 ♀, 22 July.  
 Quesnel: 1 ♂, 3 July.

## VIREO GILVUS SWAINSONI Baird

- Anahim Lake: 2 ♂, 1 ♀, 14 May-7 June.  
 Bella Coola: 2 ♂, 4 ♀, 2-7 June.  
 Chezacut: 4 ♂, 1 ♀, 1 ?, 30 August-17 September.  
 Clearwater: 1 ♀, 2 June.  
 Goose Island: 1 ♀, 30 May.  
 Indianpoint Lake: 7 ♂, 3 ♀, 8 June-22 August.  
 Stuie: 1 ♂, 1 ♀, 28 May.  
 Swanson Bay: 2 ♂, 11-14 May.

## PARULIDAE

## VERMIVORA PEREGRINA (Wilson)

- Bella Coola: 1 ♂, 3 June.  
 Bowron Lake: 1 ♂, 21 July.  
 Chezacut: 1 ?, 29 August.  
 Clearwater: 1 ♂, 1 June.  
 Indianpoint Lake: 5 ♂, 2 ♀, 1 ?, 1 June-23 July.  
 Isaac Lake: 2 ♂, 2 ♀, 18 July.  
 Kleena Kleen: 1 ♀, 16 July.

Breeding at Indianpoint Lake is indicated by a juvenal specimen, about one-quarter grown, collected on July 23, 1929.

## VERMIVORA CELATA ORESTERA Oberholser

- Anahim Lake: 7 ♂, 2 May-9 June.  
 Beaver Lake: 1 ♂, 22 June.  
 Bowron Lake: 1 ♀, 8 July.  
 Chezacut: 2 ♂, 1 ♀, 13 May-4 October.  
 Clearwater: 3 ♂, 2 ♀, 3 May-1 June.  
 Cottonwood: 1 ♂, 14 May.  
 Indianpoint Lake: 2 ♂, 1 ♀, 24 May-19 June.

Sixteen males have wing lengths between 59.0 mm. and 64.0 mm. (av. 62.3). The series is too small to arrive at any recommendation on the validity of *orestera* but it appears to be a fairly weak race on the basis of these specimens.

## VERMIVORA CELATA LUTESCENS (Ridgway)

- Aristazabel Island: 1 ♀, 3 June.  
 Calvert Island: 7 ♂, 4 ♀, 1 ?, 16 May-13 September.  
 Khutze Inlet: 1 ♀, 1 October.  
 Little Rainbow Mountains: 2 ♂, 22 June.  
 Swanson Bay: 12 ♂, 4 ♀, 5-16 May.

Twenty-one males range from 57.0 mm. to 63.0 mm. in wing length

(av. 60.1). As can be seen from measurements of *V. c. orestera* there is a small average difference, with considerable overlap, between the coastal and inland populations. I can see no conspicuous color differences in the two samples.

VERMIVORA RUFICAPILLA RIDGWAYI van Rossem

Clearwater: 7 ♂, 7 May-1 June.

DENDROICA PETECHIA RUBIGINOSA (Pallas)

Atnarko: 1 ♂, 22 May.

Barkerville: 2 ♂, 5 June.

Bella Coola: 11 ♂, 5 ♀, 24 May-11 June.

Bowron Lake: 1 ?, Spring, 1933.

Calvert Island: 2 ♀, 11-18 September.

Chezacut: 1 ♂, 1 ♀, 2 September.

Clearwater: 6 ♂, 17 May-1 June.

Indianpoint Lake: 3 ♂, 1 ♀, 15 June-8 July.

Khutze Inlet: 2 ♂, 12 June-5 October.

Smyth Island (Bardswells): 1 ♀, 22 September.

Swanson Bay: 5 ♂, 2 ♀, 14-27 May.

I am in agreement with Munro and Cowan (1947: 192) when they comment that they are unable to detect any variation in the British Columbian material. They comment that both *Dendroica p. petecia* [sic] and *D. p. rubiginosa* have been recorded from the province but that they are unwilling to recognize two forms.

I have compared the British Columbian material at hand with typical *D. p. amnicola* and *D. p. aestiva*. I find that *aestiva* is brighter in color than the British Columbian sample. These birds can be distinguished from *amnicola* by the intensification of the dark areas on the outer rectrices. The dark areas also seem to be of slightly greater extent in *D. p. rubiginosa*. Five Alaskan birds agree well with the McCabe material.

DENDROICA MAGNOLIA (Wilson)

Clearwater: 1 ♂, 2 ♀, 27 May-9 June.

Indianpoint Lake: 9 ♂, 3 ♀, 5 June-18 August.

DENDROICA CORONATA HOOVERI McGregor

Anahim Lake: 1 ♂, 1 ♀, 29 April-19 May.

Beaver Pass: 1 ♀, 6 September.

Bella Coola: 6 ♂, 4 ♀, 26 April-9 May.

Clearwater: 2 ♂, 21-29 April.

Indianpoint Lake: 1 ♂, 21 May.

Khutze Inlet: 1 ♀, 5 October.

Watson Lake: 1 ♀, 1 May.

Wetmore (1943: 313) has pointed out that *hooveri* is distinct from *D. e. coronata* in plumage stages of fall, winter, and early spring. The present series collected mainly during the summer months differs only faintly, if at all, from comparable birds from the northeastern United States.

#### DENDROICA AUDUBONI AUDUBONI (Townsend)

Alexis Creek: 1 ♀, 12 July.

Anahim Lake: 3 ♂, 3 ♀, 26 April-7 June.

Bella Coola: 6 ♂, 1 ♀, 27 April-5 May.

Bowron Lake: 1 ♂, 8 July.

Chezacut: 3 ♂, 5 ♀, 2 ♀, 28 August-25 September.

Cottonwood: 1 ♂, 2 ♀, 20-24 May.

Clearwater: 15 ♂, 5 ♀, 24 April-1 June.

Indianpoint Lake: 7 ♂, 5 ♀, 20 May-3 August.

Marguerite: 1 ♂, 1 ♀, 2 ♀, 8 September.

Natal: 1 ♂, 8 September.

100 Mile House: 1 ♂, 23 April.

Redstone: 1 ♂, 16 July.

Swanson Bay: 1 ♂, 1 ♀, 13-17 May.

#### DENDROICA NIGRESCENS (Townsend)

Stuie: 2 ♂, 1 ♀, 24-27 May.

#### DENDROICA TOWNSENDI (Townsend)

Anahim Lake: 4 ♂, 9-15 May.

Bella Coola: 8 ♂, 3 May-11 June.

Calvert Island: 1 ♂, 16 May.

Chezacut: 1 ♂, 2 ♀, 29 August-26 September.

Clearwater: 5 ♂, 23 May-9 June.

Indianpoint Lake: 4 ♂, 1 ♀, 20 May-23 September.

Stuie: 1 ♂, 1 ♀, 25-28 May.

#### DENDROICA CASTANEA (Wilson)

Indianpoint Lake: 1 ♂, 12 July.

#### DENDROICA STRIATA (Forster)

Anahim Lake: 2 ♂, 8-9 June.

Barkerville: 1 ♀, 5 June.

Chezacut: 1 ♀, 2 September.

Indianpoint Lake: 8 ♂, 1 ♀, 1 ♀, 14 June-26 August.

Rainbow Mountains: 1 ♂, 19 June.

## SEIURUS NOVEBORACENSIS LIMNAEUS McCabe and Miller

Anahim Lake: 1 ♂, 8 June.

Bowron Lake: 1 ♂, 1 ♀, 8-21 July.

Indianpoint Lake: 5 ♂, 8-29 June.

Stuie: 1 ♂, 27 May.

McCabe and Miller (1933: 196) claim average differences in color and size for this form in distinguishing it from *S. n. noveboracensis* and *S. n. notabilis*. Grinnell and Miller (1944: 409) "reaffirm" their belief in its validity. I can see no appreciable color difference in the topotypical material from Indianpoint Lake and a series of six birds from Lake Athabasca, Saskatchewan (*notabilis*). Wing measurements of the British Columbian males are between 73.0 mm. and 76.0 mm. (av. 74.7). The Saskatchewan males range from 73.0 mm. to 80.0 mm. (av. 76.8). The average difference claimed is apparently present — although the series is far too small to be acceptable as evidence. I believe that further study of *S. n. limnaeus* is needed to ascertain its true status.

## OPORORNIS TOLMIEI TOLMIEI (Townsend)

Bella Coola: 7 ♂, 6 ♀, 30 May-15 June.

Bowron Lake: 2 ♀, 8-21 July.

Chezacut: 1 ♂, 16 September.

Clearwater: 4 ♂, 30 May-5 June.

Indianpoint Lake: 5 ♂, 1 ♀, 14 June-30 July.

Isaac Lake: 1 ♀, 18 July.

Khutze Inlet: 3 ♂, 12-13 June.

Lac la Hache: 1 ♀, 7 July.

Stuie: 3 ♂, 24 May-30 June.

Phillips (1947) in his review of the races of MacGillivray's Warbler has proposed several new forms for recognition. The McCabe collection (at least a portion of it) apparently was examined by Phillips in connection with the preparation of his report. Ten of the males from Bella Coola and Khutze Inlet are marked "*tolmici* ARP '46." It appears that only seven of these were included in Phillips' final calculations (*op. cit.*: 300). My measurements (in mm.) of 10 males from Indianpoint Lake and Clearwater (inland localities) and 10 males from Stuie, Bella Coola and Khutze Inlet are as shown in Table 4.

Table 4

	<i>Wing</i>	<i>Tail</i>	<i>Wing-Tail</i>
Inland (N 10)	58.0-63.0	50.0-57.0	4.0-8.0 (Av. 6.0)
Coastal (N 10)	58.5-63.0	53.0-55.0	6.5-9.5 (Av. 8.2)

An average difference as estimated by Phillips is present but in the series at hand the trend is exactly the reverse of that which he found. The inadequacy of the present material and that which Phillips examined is clearly shown. Using my measurements I find that I am able to allocate correctly only 60 per cent of the McCabe birds on the basis of difference in wing length and tail length. Perhaps the existence of two forms of MacGillivray's Warbler in British Columbia can be shown by more adequate series combined with statistical treatment of the data. Under the circumstances, however, I see no course but to refer all of the McCabe birds to *tolmiei*. Rand (1948a: 76) has also reviewed this problem and he too was hampered by inadequate material.

#### GEOTHELYPIS TRICHAS CAMPICOLA Behle and Aldrich

Chezacut: 6 ♂, 7 ♀, 30 August-14 September.

Clearwater: 2 ♂, 3 ♀, 30 May-9 June.

Indianpoint Lake: 7 ♂, 1 ♀, 1 ?, 21 June-17 August.

With only two exceptions all of the birds (18) collected in August and September proved to be birds of the year.

I have examined typical material of *G. t. occidentalis*, including the type, and I feel that Behle and Aldrich (1947) have correctly assessed the trends in geographic variation as they are represented in British Columbia.

#### WILSONIA PUSILLA PILEOLATA (Pallas)

Anahim Lake: 9 ♂, 3 ♀, 3 May-8 June.

Atnarko: 3 ♀, 22 May.

Barkerville: 1 ♂, 1 ♀, 5 June-3 July.

Bella Coola: 13 ♂, 17 ♀, 6 May-9 June.

Blackpool: 1 ♂, 2 May.

Bowron Lake: 1 ♂, 1 ?, Spring 1933-21 July.

Calvert Island: 3 ♂, 2 May-23 May.



- Chezacut: 3 ♂, 3 ♀, 29 August–6 September.  
 Clearwater: 4 ♂, 3 ♀, 3 May–5 June.  
 Cottonwood: 1 ♂, 23 May.  
 Indianpoint Lake: 3 ♂, 3 ♀, 27 May–21 August.  
 Isaac Lake: 1 ♀, 18 July.  
 Stuie: 3 ♂, 1 ♀, 24–25 May.  
 Swanson Bay: 1 ♂, 3 ♀, 12–14 May.

Mr. McCabe noted that the specimen collected at Chezacut on September 6, 1933 was an immature female in male plumage. His notes on this bird are as follows: "Number 2384 im, ♀, in ♂ plumage. Sexing unquestionable — ovary substantial though flaccid and semi-transparent, structure visible under hand lens, duct traced to vent."

All of the McCabe specimens are referable to this race rather than *W. p. chryscola*. If there be any constant difference in coloration it appears that the inland birds are slightly brighter than those from Bella Coola, Stuie and Calvert Island.

#### SETOPHAGA RUTICILLA TRICOLORA (Müller)

- Alexis Creek: 1 ♀, 10 July.  
 Anahim Lake: 1 ♂, 2 ♀, 7 June–10 July.  
 Bella Coola: 1 ♂, 1 ♀, 7–25 June.  
 Bowron Lake: 2 ♂, 2 ♀, Spring 1933–21 July.  
 Clearwater: 2 ♂, 30 May–1 June.  
 Indianpoint Lake: 6 ♂, 3 ♀, 1 June–27 July.  
 150 Mile House: 1 ♂, 22 July.

Two males and one female collected at Bowron Lake in the spring of 1933 were found as mummies, apparently winter-killed.

### PLOCEIDAE

#### PASSER DOMESTICUS DOMESTICUS (Linné)

- Indianpoint Lake: 1 ♂, 2 ♀, 15 May–25 October.

### ICTERIDAE

#### STURNELLA NEGLECTA Audubon

- Alexis Creek: 1 ♂, 3 April.  
 Clearwater: 2 ♂, 10 May.  
 Lac la Hache: 2 ♀, 5 July.  
 Lillooet, 20 miles west: 1 ♂, 23 June.  
 100 Mile House: 1 ♂, 29 April.  
 Port Hardy: 2 ♀, 26–28 October.  
 Poultney Point: (Malcolm Id.): 1 ♀, 30 September.

## XANTHOCEPHALUS XANTHOCEPHALUS (Bonaparte)

Alexis Creek: 1 ♂, 12 July.

Anahim Lake: 1 ♀, 12 June.

100 Mile House: 2 ♂, 28 April.

130 Mile House: 1 ♂, 24 June.

Springhouse: 1 ♂, 7 May.

## AGELAIUS PHOENICEUS ssp.

Calvert Island: 1 ♂, 16 May.

This specimen can not be satisfactorily referred to any of the known forms. The bill is excessively heavy—much heavier than *A. p. caurinus*, *arctolegus* or *nevadensis*. It most closely approaches the massive-billed *A. p. fortis* in this character. It is apparently an individual variant, most logically, of *caurinus*.

## AGELAIUS PHOENICEUS ARCTOLEGUS Oberholser

Buffalo Lake: 3 ♂, 1 ♀, 26 April.

Clearwater: 1 ♂, 1 ♀, 6–10 May.

Indianpoint Lake: 1 ♂, 22 May.

Lac la Hache: 1 ♂, 5 July.

100 Mile House: 8 ♂, 3 ♀, 24–30 April.

The localities listed are, it appears, from the southern edge of the range of *arctolegus*. I believe that these birds are closer to this form than to *A. p. nevadensis* but two females from 100 Mile House are slightly grayer than typical *arctolegus* and indicate the influence of the southern race.

## AGELAIUS PHOENICEUS CAURINUS Ridgway

Ione Island: 4 ♂, 1 ♀, 15–17 April.

## EUPHAGUS CAROLINUS (Müller)

Anahim Lake: 2 ♂, 3 ♀, 23 April–7 May.

Barkerville: 1 ♂, 28 May.

Beaver Pass: 1 ♂, 6 September.

Bowron Lake: 2 ♂, 1 ♀, 29–30 June.

Chezacut: 5 ♂, 1 ♀, 5–24 September.

Clearwater: 1 ♂, 20 May.

Cottonwood: 2 ♂, 15 August.

Indianpoint Lake: 4 ♂, 3 ♀, 1 May–24 June.

Kleena Kleen: 1 ♀, 17 July.

150 Mile House: 1 ♀, 22 July.

Rainbow Mountains: 1 ♂, 17 June.

## EUPHAGUS CYANOCEPHALUS (Wagler)

- Alexis Creek: 2 ♂, 12 July.  
 Anahim Lake: 6 ♂, 5 ♀, 15 April-10 June.  
 Beaver Pass: 1 ♀, 6 September.  
 Chezacut: 8 ♂, 6 ♀, 3-24 September.  
 Clearwater: 2 ♂, 1 ♀, 22 April-6 May.  
 Cottonwood: 3 ♂, 4 ♀, 20 May-7 September.  
 Indianpoint Lake: 3 ♀, 1 ?, 26 April-30 June.  
 Lac la Hache: 1 ♂, 1 ♀, 7 July.  
 Lillooet: 1 ♂, 1 ♀, 23 June.  
 100 Mile House: 3 ♂, 2 ♀, 28 April-3 May.  
 150 Mile House: 2 ♀, 22 July.  
 Tatla Lake: 2 ♂, 2 ♀, 16 July.

## MOLOTHIRUS ATER ARTEMISIAE Grinnell

- Indianpoint Lake: 1 ♀, 1 ?, 23 May-27 July.  
 Lac la Hache: 1 ♀, 5 July.

## THRAUPIDAE

## PIRANGA LUDOVICIANA (Wilson)

- Anahim Lake: 1 ♂, 19 May.  
 Atnarko: 1 ♀, 22 May.  
 Bella Coola: 2 ♂, 3-7 June.  
 Birch Island: 1 ♂, 18 May.  
 Clearwater: 10 ♂, 1 ♀, 5 May-3 June.  
 Indianpoint Lake: 2 ♂, 3 ♀, 21 May-27 July.  
 Stuie: 2 ♂, 22-28 May.

## FRINGILLIDAE

## PHEUCTICUS MELANOCEPHALUS MACULATUS (Audubon)

- Bella Coola: 1 ♀, 3 July.

## PASSERINA AMOENA (Say)

- Lillooet, 12-28 miles north: 2 ♂, 23 June.

## HESPERIPHONA VESPERTINA BROOKSI Grinnell

- Bella Coola, 30 miles east: 1 ♂, 30 May.  
 Bowron Lake: 1 ♀, 1 July.  
 Clearwater: 2 ♂, 4 ♀, 20 May-8 June.  
 Indianpoint Lake: 3 ♂, 25 June-27 July.

## CARPODACUS PURPUREUS CALIFORNICUS Baird

- Bella Coola: 2 ♂, 1 ♀, 21 April-5 June.  
 Sea Island: 1 ♀, 13 April.

Duvall (1945b: 202), in proposing the subspecies *C. p. rubidus*, comments that birds from the Bella Coola region may be intermediate between *rubidus* and *C. p. purpureus*. He bases this statement on an earlier conclusion of Laing (1942: 181) who quoted Allan Brooks' identification of specimens from this area as intermediate between *californicus* (= *rubidus* of Duvall) and *purpureus*. Rand (1946: 96) has re-examined Laing's specimens and states that these birds are "plainly referable to *rubidus* in color." He adds that the measurements of the wing, ". . . (male, 78, 82; female, 78, 78) while not conclusive, permit the same allocation." Rand does not give any measurements of *rubidus* and I assume that he was using those supplied by Duvall (*loc. cit.*: 204) as the basis for this comment. If this be the case then it should be pointed out that the larger male might just as well be referred to *purpureus*.

In describing a fourth subspecies Rand (*loc. cit.*: 95) characterizes it as being in the same size category as *purpureus* (wing length of 10 males, 82-87 mm.)—larger than *californicus* and *rubidus*. In color, *C. p. taverneri* Rand is stated to be paler than any of the other forms. Streaking of the dorsal surfaces is indicated as being most pronounced in *taverneri*. Rand postulates that the birds of northern and eastern British Columbia probably belong to this form.

I find that the coastal and inland birds are barely separable on the basis of wing length. Wing lengths in the two males listed above are 81.0 mm. and 82.5 mm. Fourteen males from inland localities (listed below) range from 80.5 mm. to 87.5 mm. However, their smallish size, combined with color differences is sufficient, I believe, to refer them to *C. p. californicus*. I have compared these birds with a series of twenty skins from the San Bernardino Mountains of California which are in the same stages of plumage wear. I can see only a slight difference in color in the two samples. I find it impossible to pick out the British Columbian birds when they are placed in this southern series. I do not think that the northern birds are sufficiently and constantly different enough to warrant nomenclatorial recognition.

#### CARPODACUS PURPUREUS PURPUREUS (Gmelin)

Clearwater: 6 ♂, 1 ♀, 10 May-1 June.

Cottonwood: 5 ♂, 16-22 May.

Indianpoint Lake: 2 ♂, 29 April-2 May.

Quesnel: 1 ♂, 3 July.

The wing length of the males listed here is given in connection with

the discussion of the preceding form. On the basis of size these birds approximate the limits of variation for ten males as given by Rand (*op. cit.*) in his description of *C. p. taverneri*. Rand does not indicate that *taverneri* differs from *purpureus* in size. The limits of variation for *purpureus* as given by Duvall (*op. cit.*: 204) are 80.0 mm.-87.0 mm. I have used adult males from the northeastern United States for comparison of color and I do not note the light color which Rand predicts for the British Columbian interior population. I believe that these birds are correctly referred to the nominate form.

#### CARPODACUS CASSINI Baird

Clinton: 1 ♂, 1 ♀, 8 May.

Duvall (1945b: 203) has proposed the name *C. c. vinifer* for use in designating the northern portion of the population of this species. He characterizes *vinifer* as being of the same size as *C. c. cassinii* but differing in color. The McCabe specimens are obviously insufficient for the formation of any concept of variation. I am unable, however, to distinguish them from Colorado birds in comparable plumage. In this circumstance I see no course open but to refer these specimens to *C. cassinii*.

#### PINICOLA ENUCLEATOR ALASCENSIS Ridgway

Beaver Pass: 1 ♂, 1 ♀, 16 March.

Bowron Lake: 1 ♂, 27 November.

Cottonwood: 4 ♂, 1 ♀, 14 March-7 November.

Using bill shape and the amount of color present on the rump of the females, I believe that these specimens are correctly allocated to this form.

#### PINICOLA ENUCLEATOR MONTANA Ridgway

Anahim Lake: 1 ♂, 1 ♀, 28 April.

Bowron Lake: 1 ♂, 1 ♀, 30 June.

Indianpoint Lake: 2 ♂, 3 June-31 July.

#### LEUCOSTICTE TEPHROCOTIS LITTORALIS Baird

Bella Coola, Mts. northeast: 1 ♂, 25 June.

Rainbow Mountains: 2 ♂, 20 June.

Swanson Bay, peaks above Yule Lake: 2 ♂, 24 June.

#### LEUCOSTICTE TEPHROCOTIS TEPHROCOTIS (Swainson)

Indianpoint Lake: 5 ♂, 1 ♀, 27 May-14 July.

These specimens were taken at altitudes of 6500-7000 feet.

*ACANTHIS FLAMMEA FLAMMEA* (Linné)

Cottonwood: 3 ♂, 1 ♀, 28 January.

Indianpoint Lake: 2 ♂, 4 ♀, 23-26 October.

*SPINUS PINUS PINUS* (Wilson)

Alexis Creek: 1 ♀, 4 April.

Bella Coola: 7 ♂, 4 ♀, 6-10 June.

Clearwater: 1 ♂, 1 ♀, 1 June.

Indianpoint Lake: 12 ♂, 3 ♀, 1 ?, 8 June-27 July.

150 Mile House: 1 ♂, 22 July.

Swanson Bay: 3 ♂, 3 ♀, 11 May-26 September.

*SPINUS TRISTIS JEWETTI* van Rossem

Sea Island: 2 ♂, 22 September.

Wing measurements of 71.5 mm. and 73.0 mm. seem to indicate that these specimens should be referred to this form (see van Rossem, 1943: 158).

*SPINUS PSALTRIA HESPEROPHILA* (Oberholser)

Indianpoint Lake: 1 ♂, 9 June.

This specimen apparently constitutes the first record for the form in British Columbia. Mr. McCabe notes: "One lone ♂ suddenly appeared below dining room window and lit on a dandelion. I heard its plaintive note at the same time as I rushed for the gun. It turns out to be not only new to B. C. but I find none of this species listed for Canada! . . . . Testes 5.4 mm., crop filled with dandelion seeds — moderately fat. Looked and listened several times in course of day but find no mate. A south wind has been blowing but should not suppose it likely to have blown this bird so far out of its range as it is not an especially strong wind."

*LOXIA CURVIROSTRA SITKENSIS* Grinnell

Balaklava Island: 3 ♂, 1 ♀, 11 June.

Goose Island: 1 ♂, 1 ♀, 30 May-20 July.

Hurst Island: 1 ?, 18 June.

Indianpoint Lake: 2 ♂, 21 June-9 August.

Swanson Bay: 3 ♂, 4 ♀, 15-28 June.

Table Island: 1 ♀, 7 June.

Williams Lake: 2 ♂, 25 June.

Wing lengths of the males in this series range from 82.5 mm. to 86.5 mm. Culmens are all less than 15.0 mm. The inland records for this form are apparently not unusual according to Munro and Cowan (1947: 215).

## LOXIA CURVIROSTRIS BENDIREI Ridgway

Indianpoint Lake: 16 ♂, 5 ♀, 1-24 August, (1 ?, Spring, 1933).

Quesnel: 1 ♂, 1 ♀, 3 July.

Swanson Bay: 3 ♂, 2 ♀, 28 May-20 June.

Williams Lake: 4 ♂, 3 ♀, 31 March.

These birds all have wing lengths of more than 87 mm. and culmens of more than 15 mm. Eleven additional skins from Indianpoint Lake, and two from Alexis Creek are probably referable to this form. They are made up as "flat skins" with no head and hence positive identification is not possible.

Two females taken at Indianpoint Lake on August 13 and 19, 1931 had shelled eggs in the oviducts — apparently ready to lay.

## LOXIA LEUCOPTERA LEUCOPTERA Gmelin

Chezacut: 1 ♂, 6 September.

Cottonwood: 5 ♂, 1 ♀, 26 July-13 November.

Flathead Summit: 1 ♂, 10 September.

Indianpoint Lake: 4 ♂, 8 ♀, 2 August-5 October.

## PIPILO ERYTHROPHthalmus CURTATUS Grinnell

Lillooet: 1 ♂, 23 June.

I have commented elsewhere (1951: 350) as to Sibley's (1950: 119) recommendation to merge *Pipilo maculatus* and *Pipilo erythrophthalmus*. My own work with the eastern populations (1952) supports his view.

## PASSERCULUS SANDWICHENSIS SANDWICHENSIS (Gmelin)

Bella Coola: 1 ♂, 5 May.

Calvert Island: 4 ♂, 2 ♀, 5 May-21 October.

Hardy Bay: 2 ♂, 1 ♀, 30 September.

Mayer Island (Seymour Inlet): 1 ♂, 15 October.

Port Hardy: 1 ♀, 28 October.

Shelter Island: 2 ♂, 21 October.

Table Island: 4 ♂, 2 ♀, 12-21 September.

These migrants appear to be certainly referable to this form. Measurements of the males are as follows: wing [15], 76.5 mm.-80.5 mm. (av. 78.1); depth of bill [13], 5.9 mm.-7.5 mm. (av. 6.6); culmen [14], 9.6 mm.-11.2 mm. (av. 10.4). Wing measurements of the five females are from 75.0 mm. to 76.0 mm. In addition, the specimens listed here conform in color to the diagnosis given by Peters and Griscom (1938: 448) in their revisionary study of variation in the species.

## PASSERCULUS SANDWICHENSIS BROOKSI Bishop

Bella Coola: 1 ♂, 9 May.

Lulu Island: 5 ♂, 1 ♀, 17 April.

Rainbow Mountains: 6 ♂, 2 ♀, 17-19 June.

Measurements of the males in this series are as follows: wing [11], 68.0 mm.-74.0 mm. (av. 67.7); depth of bill [11], 5.4 mm.-5.8 mm. (av. 5.6); culmen [10], 9.0 mm.-10.0 mm. (av. 9.5).

The specimens collected in the Rainbow Mountains were apparently resident birds. One female taken on 17 June, 1932 had a "16 millimeter" egg in the oviduct.

## PASSERCULUS SANDWICHENSIS ANTHINUS Bonaparte

Anahim Lake: 3 ♂, 1 ♀, 3-12 May.

Bella Coola: 1 ♂, 4 May.

Barkerville: 1 ♂, 2 ♀, 28 May-6 September.

Calvert Island: 4 ♂, 1 ♀, 4-15 September.

Chezacut: 10 ♂, 7 ♀, 14 July-28 September.

Clearwater: 6 ♂, 2 ♀, 25 April-6 June.

Cottonwood: 1 ♂, 22 May.

Indianpoint Lake: 2 ♀, 2 ?, 17 August-3 September.

Khutze Inlet: 1 ♀, 24 May.

LeRoy Lake: 1 ?, 24 September.

Marguerite: 1 ♂, 5 September.

100 Mile House: 6 ♂, 24-29 April.

"103 L", near 100 Mile House: 2 ♂, 1 ♀, 30 April-1 May.

Swanson Bay: 1 ♂, 1 ♀, 7-10 May.

Watson Lake: 4 ♂, 1 May.

Color and size in these specimens seem to conform to the description provided by Peters and Griscom (*op. cit.*: 463). Measurements of the males are as follows: wing [36], 71.0 mm.-76.0 mm. (av. 73.1); depth of bill [32], 5.0 mm.-6.0 mm. (av. 5.4); culmen [35], 9.1 mm.-10.8 mm. (av. 9.7).

## PASSERCULUS SANDWICHENSIS CRASSUS Peters and Griscom

Bella Coola: 12 ♂, 1 ♀, 29 April-9 May.

Calvert Island: 6 ♂, 11 ♀, 26 April-15 September.

Goose Island: 1 ♀, 30 May.

Hardy Bay: 1 ♂, 2 ♀, 30 September.

LeRoy Bay: 1 ♂, 1 ♀, 24 September.

Lulu Island: 1 ♀, 1 ?, 5 October.

Smyth Island: 1 ♀, 11 October.

Swanson Bay: 3 ♂, 2 ♀, 7 May-26 September.

Table Island: 4 ♀, 21-22 September.



Measurements of these males are as follows: wing [23], 70.0 mm.-76.0 mm. (av. 73.5); depth of bill [20], 5.7 mm.-7.0 mm. (av. 6.3); culmen [22], 9.3 mm.-11.2 mm. (av. 10.1).

PASSERCULUS SANDWICHENSIS NEVADENSIS Grinnell

Anahim Lake: 1 ♂, 1 ♀, 12 June.  
 Barkerville: 5 ♂, 2 ♀, 29 May-25 July.  
 Bowron Lake: 1 ♂, 21 July.  
 Buffalo Lake: 1 ♂, 26 April.  
 Chezacut: 2 ♂, 2 ♀, 29 August-5 September.  
 Indianpoint Lake: 4 ♂, 6 ♀, 6 June-6 July.  
 Lac la Hache: 2 ♀, 5 July.  
 127 Mile House: 1 ♂, 5 July.

Measurements of the fifteen males are as follows: wing, 67.5 mm.-76.5 mm. (av. 72.2); depth of bill, 5.2 mm.-6.2 mm. (av. 5.7); culmen, 9.0 mm.-11.2 mm. (av. 9.9).

A female collected at Anahim Lake on June 12, 1932 had a 16 mm. yolk in the oviduct. Another female from Indianpoint Lake, June 6, 1930, had an egg in the duct ready to lay.

POECETES GRAMINEUS GRAMINEUS (Gmelin)

Anahim Lake: 1 ♂, 15 May.  
 Chezacut: 5 ♂, 4 ♀, 28 August-15 September.  
 Clinton: 1 ♀, 8 May.  
 Hanceville: 1 ♀, 21 July.  
 Indianpoint Lake: 1 ♂, 1 ♀, 12 May-25 August.  
 Lac la Hache: 1 ♂, 5 July.  
 Lillooet: 3 ♂, 23 June.  
 Marguerite: 1 ♀, 8 September.  
 100 Mile House: 6 ♂, 2 ♀, 26 April-3 May.  
 150 Mile House: 2 ♂, 1 ♀, 22 July.  
 Quesnel: 1 ♀, 3 July.  
 Redstone: 1 ♀, 16 July.  
 Riske Creek: 1 ♀, 21 July.  
 70 Mile House: 1 ♂, 5 May.  
 Soda Creek: 1 ♂, 8 September.  
 Williams Lake: 1 ♂, 25 June.

These skins have been compared with specimens in comparable plumage collected in the eastern United States and with others from Arizona and Colorado. In color they must be referred to the eastern form. They are not nearly so pale as the southwestern birds which I take to represent *P. g. confinis* Baird. Twenty-one males have wing lengths between 80.0 mm. and 88.0 mm. (av. 83.9). Ten eastern males

(Massachusetts) range from 81.0 mm. to 86.0 mm. (av. 82.3). Eleven males from Arizona and Colorado have wing lengths between 83.5 mm. and 89.5 mm. (av. 85.9). The larger average size claimed for *confinis* by Ridgway (1901: 184) seems much more evident in the southwestern part of its range. Despite the considerable overlap in measurements these southwestern birds are easily recognized by their paleness. The British Columbian material, on the other hand, can not be separated from the eastern birds on the basis of either size or color.

JUNCO HYEMALIS HYEMALIS (Linné)

Clearwater: 2 ♂, 2-27 May.

These specimens are both gray-headed, gray-sided birds and I believe correctly assigned to this form.

JUNCO HYEMALIS MONTANUS Ridgway

Clearwater: 27 ♂, 10 ♀, 1 ?, 19 April-11 May.

Natal, 15 miles north: 2 ♂, 8 September.

100 Mile House: 4 ♂, 3 ♀, 23 April-3 May.

JUNCO HYEMALIS SHUFELDTI Coale

Sea Island: 1 ♀, 13 April.

A short wing (70.0 mm.) and quite brown-back color refers this specimen from near Vancouver to this form.

JUNCO HYEMALIS OREGANUS (Townsend)

Calvert Island: 7 ♂, 4 ♀, 23 April-18 September.

These specimens are much redder in back color than birds from the southern coast of British Columbia. Wing length of the males ranges from 75.5 mm. to 78.8 mm. The adult females (3) range from 72.0 mm. to 73.0 mm. Size is not a critical factor in distinguishing *J. h. oregonus* and *J. h. shufeldti* and these specimens (possibly migrants) must be referred to this form on the basis of color of the back.

SPIZELLA ARBOREA OCHRACEA Brewster

Indianpoint Lake: 2 ♀, 25 September-6 October.

SPIZELLA PASSERINA ARIZONAE Coues

Alexis Creek: 1 ♂, 1 ?, 10 July.

Anahim Lake: 3 ♂, 1 ♀, 8-10 June.

Barkerville: 1 ♂, 3 July.

Beaver Lake: 1 ♀, 12 June.

Bella Coola, 30 miles east: 3 ♂, 30 May-3 June.

Bowron Lake: 1 ♂, 8 July.

- Clearwater: 9 ♂, 5 ♀, 22 May-6 June.  
 Hanceville: 1 ♂, 21 July.  
 Indianpoint Lake: 4 ♂, 8 ♀, 23 May-21 September.  
 Lillooet: 1 ♂, 1 ♀, 23 June.  
 100 Mile House: 2 ♂, 1-4 May.  
 Quesnel: 2 ♂, 3 July.  
 Soda Creek: 1 ♂, 8 September.

This excellent series is much paler than typical *S. p. passerina* from the eastern United States. Wing length in 28 males ranges from 70.0 mm. to 76.0 mm. (av. 72.9). Thirteen males from Massachusetts and South Carolina range from 66.5 mm. to 73.0 mm. (av. 69.2).

#### SPIZELLA PALLIDA (Swainson)

- Beaver Lake: 1 ♀, 6 June.  
 Indianpoint Lake: 1 ♂, 19 September.

The specimen collected at Beaver Lake in 1930 apparently is not included in the records available to Pitelka (1947).

#### ZONOTRICHIA LEUCOPHRYS GAMBELLII (Nuttall)

- Ashcroft: 3 ♂, 1 ♀, 19 April.  
 Anahim Lake: 4 ♂, 24 April-1 May.  
 Barkerville: 1 ♂, 1 ♀, 1 ?, 6 September.  
 Bella Coola: 9 ♂, 6 ♀, 2 May-3 June.  
 Bowron Lake: 1 ♂, 5 September.  
 Calvert Island: 1 ♂, 27 April.  
 Chezacut: 11 ♂, 15 ♀, 1 ?, 30 August-28 September.  
 Clearwater: 13 ♂, 6 ♀, 1 ?, 25 April-10 May.  
 Clinton: 7 ♂, 20-24 April.  
 Cottonwood: 2 ♂, 1 ♀, 14-26 May.  
 83 Mile House: 1 ♂, 20 April.  
 Indianpoint Lake: 7 ♂, 6 ♀, 1 May-21 September.  
 Kersley: 1 ♂, 8 September.  
 Lac la Hache: 1 ♂, 7 July.  
 100 Mile House: 3 ♂, 7 ♀, 19-30 April.

Of the males, 76 are white-lored, two are black-lored (see Rand 1948b: 426).

#### ZONOTRICHIA LEUCOPHRYS PUGETENSIS Grinnell

- Comox: 6 ♂, 5 ♀, 7 May-3 June.  
 Huntingdon: 8 ♂, 8 ♀, 1 ?, 5 May-5 October.  
 Metchosin: 2 ♂, 5 August-14 September.  
 Merville: 25 ♂, 7 ♀, 15 April-4 June.  
 Sea Island: 4 ♂, 3 ♀, 16 April-22 September.  
 Victoria: 4 ♂, 4 ♀, 8 May-1 September.

## ZONOTRICHIA CORONATA (Pallas)

- Anahim Lake: 1 ♂, 15 May.  
 Barkerville: 1 ?, 13 July.  
 Bella Coola: 17 ♂, 3 ♀, 22 April-5 May.  
 Calvert Island: 2 ♂, 6 ♀, 20 April-18 September.  
 Chezacut: 2 ♂, 1 ?, 16-28 September.  
 Clearwater: 1 ♂, 9 May.  
 Fitzhugh Sound: 1 ♀, 15 May.  
 Indianpoint Lake: 4 ♂, 11 ♀, 16 May-16 August.  
 LeRoy Lake: 1 ?, 24 September.  
 Rainbow Mountains: 3 ♂, 17 June.  
 Stuie: 1 ♂, 29 May.

## ZONOTRICHIA ALBICOLLIS (Gmelin)

- Indianpoint Lake: 1 ♂, 5 October.

## PASSERELLA ILIACA ZABORIA Oberholser

- Indianpoint Lake: 1 ♂, 15 September.

## PASSERELLA ILIACA ALTIVAGANS Riley

- Indianpoint Lake: 1 ♂, 1 ♀, 7 May-16 July.

## PASSERELLA ILIACA OLIVACEA Aldrich

- Rainbow Mountains: 4 ♂, 1 ♀, 1 ?, 17-19 June.

This race described by Aldrich (1943) from Mount Ranier, Washington, is undoubtedly breeding in the Rainbow Mountains. One male and one bird of unknown sex collected on June 18, 1932 are juvenals — one-quarter to one-half grown. The adults were compared with topotypical material of *olivacea* in the collections of the U. S. National Museum.

## PASSERELLA ILIACA UNALASCIENSIS (Gmelin)

- Bella Coola: 3 ♀, 23 April-8 May.  
 Calvert Island: 1 ♀, 29 April.  
 Smyth Island: 1 ♀, 22 September.

## PASSERELLA ILIACA SINUOSA Grinnell

- Calvert Island: 2 ♂, 29-30 April.

PASSERELLA ILIACA TOWNSENDI (Audubon)<sup>1</sup>

- Bella Coola: 3 ♂, 2 ♀, 24 April-9 May.  
 Calvert Island: 1 ♂, 2 ♀, 27-30 April.  
 Khutze Inlet: 1 ♂, 5 October.

<sup>1</sup>J. Dan Webster of Hanover College borrowed 17 specimens from the McCabe collection during the course of my study. He has kindly furnished me with the following list of this series with his critical determinations. *P. i. townsendi*: Bella Coola (9), April 22-May 2; Calvert Island (1), Sept. 11; Goose Island (1), May 30; Vancouver Island (3), Sept. 30. *P. i. fuliginosa*: Calvert Island (1), Sept. 16; Table Island (2) Sept. 21.

*PASSERELLA ILIACA INSULARIS* Ridgway

Pitt Island: 1 ♂, 28 September.

*PASSERELLA ILIACA ANNECTENS* Ridgway

Bella Coola: 1 ♂, 25 April.

Calvert Island: 2 ♂, 27-29 April.

Chezacut: 2 ♀, 2 September-4 October.

Indianpoint Lake: 1 ♂, 15 September.

*MELOSPIZA LINCOLNII LINCOLNII* Audubon

Anahim Lake: 3 ♂, 1 ♀, 30 April-6 May.

Australian: 1 ♂, 8 September.

Bella Coola: 7 ♂, 2 ♀, 27 April-11 September.

Birch Island: 1 ♀, 30 April.

Calvert Island: 1 ♂, 2 ♀, 1 ♀, 8-15 September.

Chezacut: 7 ♂, 3 ♀, 28 August-17 September.

Clearwater: 5 ♂, 2 ♀, 22 April-6 May.

Cottonwood: 1 ♀, 12 August [?].

Indianpoint Lake: 10 ♂, 6 ♀, 2 June-6 September.

Isaac Lake: 1 ♂, 18 July.

Lac la Hache: 1 ♀, 6 July.

Thirty-five males range from 61.0 mm. to 67.0 mm. (av. 64.0 mm.) in wing length. Twenty females have wing lengths between 57.5 mm. and 63.0 mm. (av. 60.6).

The birds collected on Calvert Island and Bella Coola are apparently migrants. McCabe comments in Miller and McCabe's (1935: 151) study of *M. lincolnii*, that he had not at that time found the species breeding at Bella Coola. In wing length these birds are fairly large (61-63 mm.) and in color I believe that they are closer to *M.l. lincolnii*. McCabe at a later date did discover the species breeding at Khutze Inlet and the birds collected there seem closer to *gracilis* in color although the size of one is nearer *lincolnii*.

*MELOSPIZA LINCOLNII GRACILIS* Kittlitz

Bella Coola: 1 ♂, 7 May.

Khutze Inlet: 3 ♂, 12 June.

Swanson Bay: 1 ♀, 17 May.

The specimens collected at Khutze Inlet in 1936 were breeding birds. In his field notes for this day Mr. McCabe writes, ". . . Finally found breeding rather commonly on flats at Khutze Inlet in crabs and willows and in heavy grass and siwash rhubarb June 12-13. By this time had young out of nest . . ." In color these birds are referable to *gracilis*

although in wing length one specimen is nearer *M. l. lincolni*. Wing length of the males varies from 58.0 mm. to 63.0 mm. The female has a shorter wing, 55.0 mm.

MELOSPIZA GEORGIANA ERICRYPTA Oberholser

Indianpoint Lake: 1 ♂, 9 October.

McCabe and McCabe (1932) have previously reported this specimen.

MELOSPIZA MELODIA CAURINA Ridgway

Allison Harbor: 4 ♀, 17-20 October.

Calvert Island: 1 ♂, 4 ♀, 8-21 September.

Estevan Island: 1 ♂, 1 ♀, 3-4 October.

Hardy Bay: 1 ♀, 30 September.

Hurst Island: 1 ♀, 25 September.

Koeye River: 1 ♂, 12 September.

Khutze Inlet: 1 ♂, 1 ♀, 4-5 October.

Lowe Inlet: 1 ♂, 23 September.

Pitt Island: 1 ♀, 28 September.

Princess Royal Island: 1 ♀, 28 September.

St. Johns Harbor: 1 ♀, 19 September.

Smyth Island: 2 ♂, 22-23 September.

Swanson Bay: 1 ♂, 1 ♀, 29 September.

Table Island: 1 ♂, 3 ♀, 19-21 September.

These birds as a group stand out as being much larger than the remainder of the specimens collected along the coast during the fall (see Tables 5, 6 and 7). Nine males range from 72.0 mm. to 75.5 mm. (av. 73.8) in wing length. Wing length of 18 females ranges from 69.0 mm. to 74.0 mm. (av. 71.4). Both sexes are much less ruddy in color than the remainder of the coastal birds and are easily separable on this basis alone.

MELOSPIZA MELODIA RUFINA Bonaparte

Moore Islands: 1 ♀, 12 September.

Wing length of 72.0 mm. and quite reddish plumage — not dark as in remainder of the large specimens — I believe refers this bird to *rufina*.

MELOSPIZA MELODIA MORPHNA Oberholser

(Coastal localities)

Allison Harbor: 2 ♂, 20-21 October.

Aristazabel Island: 4 ♂, 2 ♀, 4 June-10 September.

Bella Coola: 9 ♂, 8 ♀, 22 April-3 July.

Calvert Island: 5 ♂, 8 ♀, 21 April-18 September.

Clam Cove: 1 ♀, 10 June.  
 Estevan Island: 1 ♂, 3 October.  
 Goose Island: 1 ♂, 30 May.  
 Hardy Bay: 2 ♀, 30 September.  
 Hurst Island: 2 ♀, 26 August–26 September.  
 Ione Island: 9 ♂, 6 ♀, 15–17 April.  
 Khutze Inlet: 8 ♂, 4 ♀, 24 May–1 October.  
 Koeve River: 1 ♂, 1 ♀, 14 July–12 September.  
 Moore Islands: 1 ♂, 1 ♀, 12 September.  
 Phillips Arm: 2 ♂, 5 November.  
 Poultney Point: 2 ♂, 1 ♀, 30 September.  
 Princess Royal Island: 2 ♂, 2 ♀, 21 June.  
 St. Johns Harbor: 1 ♀, 19 September.  
 Sea Island: 4 ♂, 13 April.  
 Smyth Island: 1 ♀, 22 September.  
 Stuiie: 1 ♂, 27 May.  
 Swanson Bay: 4 ♂, 1 ♀, 17–21 May.  
 Table Island: 1 ♂, 2 ♀, 8 June–21 September.  
 Victoria, 14 miles northwest: 1 ♂, 16 October.

## (Inland localities)

Alexis Creek: 1 ♀, 20 July.  
 Anahim Lake: 3 ♂, 2 ♀, 19 April–8 June.  
 Atnarko: 1 ♀, 4 June.  
 Australian: 2 ♂, 8 September.  
 Beaver Lake: 1 ♀, 30 May.  
 Buffalo Lake: 1 ♂, 26 April.  
 Chezacut: 10 ♂, 9 ♀, 8 June–2 October.  
 Clearwater: 8 ♂, 7 ♀, 21 April–3 June.  
 Cottonwood: 4 ♂, 14 May–12 August.  
 Indianpoint Lake: 7 ♂, 2 ♀, 12 June–12 September.  
 100 Mile House: 2 ♂, 1 ♀, 28 April–3 May.  
 127 Mile House: 2 ♂, 3–4 July.  
 150 Mile House: 1 ♂, 22 July.

Munro and Cowan (1947: 236) state that, in their opinion, the characters differentiating *M.m. morphna* and *M.m. inexpectata* Riley are demonstrable. The range of *morphna* is given as including the "Coast Forest" biotic area. I can see no constant color differences in the coastal and inland birds collected by McCabe. Measurements (in mm.) of the two groups of specimens are summarized in Tables 5, 6, and 7.

Table 5

<i>Males</i>	<i>Wing</i>	<i>Culmen</i>
Coastal Spring (April-June)	N = 40 66.0-72.0 (68.9)	N = 40 10.5-12.9 (11.0)
Coastal Fall (August-Oct.)	N = 18 66.0-72.0 (69.7)	xxx
All Coastal	N = 58 66.0-72.0 (69.2)	N = 40 10.5-12.9 (11.0)

Table 6

<i>Females</i>	<i>Wing</i>	<i>Culmen</i>
Coastal Spring (April-July)	N = 26 63.0-69.5 (66.1)	N = 26 10.4-13.2 (11.4)
Coastal Fall (Aug.-Sept.)	N = 16 63.5-69.0 (66.5)	N = 15 10.5-11.9 (11.2)
All Coastal	N = 42 63.0-69.5 (66.3)	N = 41 10.4-13.2 (11.4)

I have also compared the McCabe birds with material in the collections of the Museum of Comparative Zoology which was taken in southeastern British Columbia and find that they are indistinguishable. I have seen no specimens of *M. m. merrilli* Brewster but I believe that Swarth (1923) was correct in his assessment of the lack of geographic variation in coastal and inland British Columbian populations.



Table 7

	<i>Wing</i>	<i>Culmen</i>
Interior Males	N = 40 67.0-72.0 (68.8)	N = 10 11.0-11.6 (11.2)
Interior Females	N = 23 63.0-69.0 (65.0)	xxx

## CALCARIUS LAPPONICUS ALASCENSIS Ridgway

Anahim Lake: 3 ♀, 11 April.

Indianpoint Lake: 3 ♂, 22 September-5 November.

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PLATES

PLATE 1

General area covered by the McCabe collection of British Columbian birds.



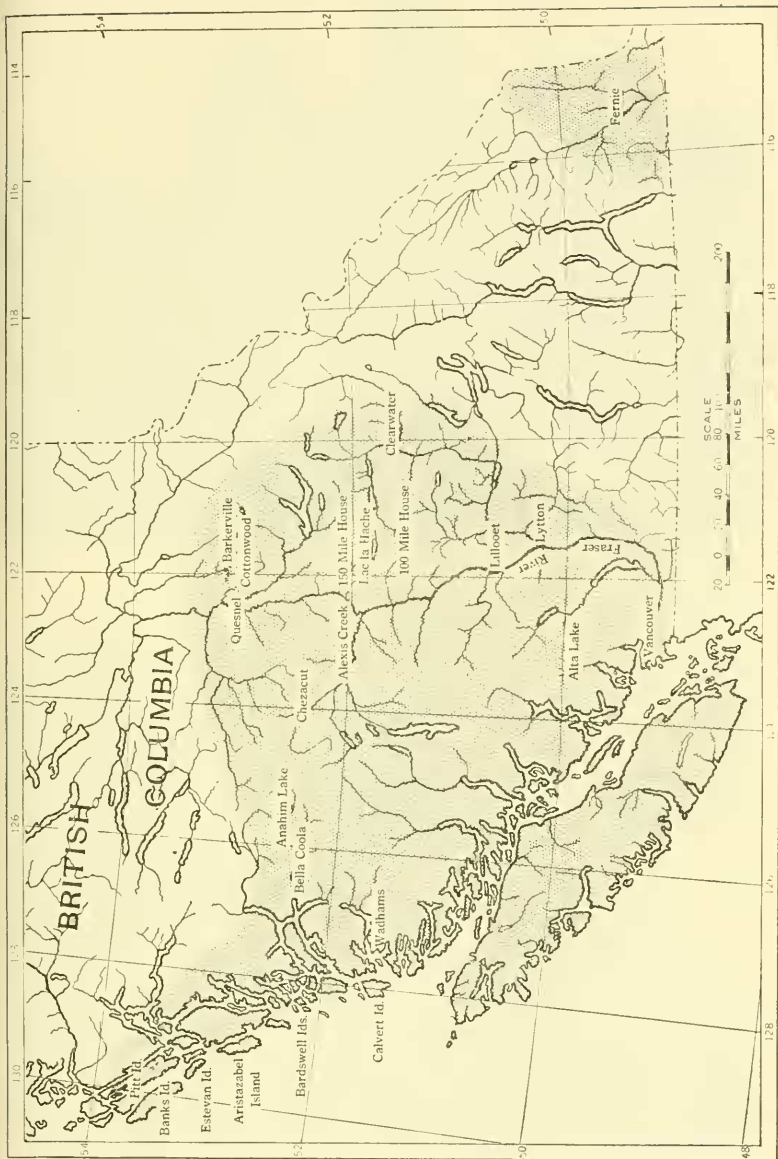


PLATE 1